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WILDLIFE REVIEW

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Bibliography: Mammals

Schantz, Viola S., and Emma M. Charters. Twenty-year index to Journal of Mammalogy, Volumes 1-20 inclusive, 1919-1939. Lancaster, Pa. ix+219 pp., 1945 (Emmet T. Hooper, University of Michigan, Ann Arbor).

A detailed and valuable bibliographic aid.

Classification: Bobwhite

Aldrich, John W. The United States races of the bob-white, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(4), Oct. 1946, pp. 493-508, 1 map.

Synonymy, description, measurements, and distribution of 7 forms the author recognizes among Usonian birds. Bibliography of 24 titles.

Classification: Geese

Aldrich, John W. Speciation in the white-cheeked geese, Wilson Bul. (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 58(2), June 1946 (August), pp. 94-103.

Revisionary discussion of Canada-type geese, dividing them into two species, hutchinsi and canadensis, and describing a new subspecies of each.

Conservation: Bighorn

Trester, Laura Markham. Saving the bighorns, Frontiers (Academy of Natural Sciences, Philadelphia, Pa.), 11(1), Oct. 1946, pp. 3-4, 26-27, 2 photos.

Popular article on the Rocky Mountain bighorn (Ovis c. canadensis) with brief discussion of recent increase in the species, mainly in Colorado. Notes on habits and life history.--Lee E. Yeager.

Conservation: Cooperation

Cottam, Clarence, and Clifford C. Presnall. Partnership in conservation of renewable resources, State Government (Council of State Governments, 1313 69th St., Chicago 37, Ill. 35 cents a copy), 14(6), June 1946, pp. 153-156, 162.

Strong plea for understanding between various conservation organizations with emphasis on the totality of our renewable natural resources. Resources should serve broad, long-time needs rather than be utilized solely for the specific interests of special groups. Stresses need for cooperation between agencies in overall unity in programs. Cites HR 6097 as an example of much needed national legislation to effect inter-agency coordination.--Lee E. Yeager

Conservation: Waterfowl

Day, Albert M. Don't make my duck pond a refuge, Wisconsin Conservation Bul. (Wisconsin Conservation Dept., Madison), 11(6), June 1946, pp. 27-30.

Misconceptions on the part of hunters as to the role of refuges and as to the source of shootable wild fowl. Refuges of the north central states, where water impoundment and management have been practiced, have been productive of the birds, while unmanaged areas in the same region have lost a great deal of their productive capacity through lack of water. The net result has been fewer waterfowl and to preserve stock for the future, hunting privileges must be restricted. The wintering range is inadequate but additional refuge units for it are being acquired. Illustrative examples of this activity and of swamp restoration are cited.

Conservation: Waterfowl

Day, Albert M. What's happened to our ducks?, Outdoors (136 Federal St., Boston 10, Mass. 20 cents a copy), 14(9), Oct. 1946, 3 photos (1 of author), chart.

Popular article giving reasons for 1946 restrictions in waterfowl shooting regulations. These are, briefly, a 44-percent increase in hunting pressure and a 36-percent decrease in the waterfowl population during the last two years. The 1945 kill is estimated at 23 million birds; cripples, 3 to 9 million more. Decrease in population due mainly to drought on breeding grounds. Closing of the entire Mississippi flyway to Canada goose hunting was necessitated by the progressive decline in the population of the birds during the last ten years.--Lee E. Yeager.

Conservation: Wildlife of Mount McKinley

Cahalane, Victor H. Shall we save the larger carnivores?, Living Wilderness (1840 Mintwood Place, N. W., Washington 9, D. C. 50 cents a copy), 11(17), June 1946, pp. 17-22, 8 photos.

Discussion of wolf-Dall sheep relationships in Mount McKinley National Park in the light of proposed legislation to reduce the number of wolves, coyotes, etc., to the end that the Park shall become and be maintained as a safe sanctuary for big game and other wildlife, except predators. The work of Adolph Murie on wildlife ecology of the Park is abstracted, later information summarized, and plans for further investigation noted. The author upholds the national park policy of preserving wildlife as a whole and deprecates the attempt to turn Mount McKinley National Park into a game preserve.

Control: Badger

Bremner, C. E. Badger control, California Dept. of Agr. Bul. (Sacramento), 35(3), July-Sept. 1946, pp. 151-153, 2 photos.

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Credits depredations of badgers on poultry in Sonoma and Marin counties, California, to the abundance of chickens and turkeys easily available to these animals. Losses to individual ranchers involved hundreds of birds, some of which were cached by badgers in their extensive burrows. Eggs also were taken. Most effective control consisted of placing strychnine-poisoned eggs in burrows. Cyanide dust was ineffective and carbon bisulphide gave only about 50 per cent control.--Lee E. Yeager.

Control: Bounty system

Hamilton, W. J., Jr. The bounty system doesn't work, Animal Kingdom (New York Zoological Society, 630 Fifth Ave., New York 20, N. Y. 50 cents a copy), 49(4), Aug. 1946, pp. 130-138, 10 photos.

Popular article discussing various aspects of the bounty question, including reasons why bounties are not effective. Control by individuals, where needed, and employment of state and federal hunters are preferred as alternatives to bounty systems.--Lee E. Yeager.

Control: Bounty system

Neubrech, Walter. History of predator control in the State of Washington, Washington Outdoors (714 Pacific Ave., Tacoma 2, Wash. 25 cents a copy), 1(5-6), Aug.-Sept. 1946, pp. 5, 15.

Discussion of fraudulent bounty claims and other shortcomings of bounty system. States that a large percentage of bountied coyotes are taken from areas that will not support game. Gives numbers of coyotes, bobcats, cougars, and other species on which bounties were paid during period 1935-1945. Advocates dual system of bounties and salaried trappers.--Lee E. Yeager.

Control: Corn pulling by pheasants

Kimball, Jim. Pheasants and crop damage, South Dakota Conservation Digest (State Dept. of Game, Fish, and Parks, Pierre), 12(5), May 1945, p. 10.

Repellents have not been very successful in protecting newly-planted corn but research to find a better one is continuing. There is a rather close correlation between pheasant pulling and cutworm damage; reasons are discussed. Scattering shelled corn or broken ears around the edges of fields a few days before the corn is due to show above ground is effective in preventing damage and costs only about 2-3 cents per acre. One bushel of corn per 100 rods of field border is sufficient unless cool weather slowing growth of the corn extends the period of susceptibility to damage.

Control: Crop damage by farm practice

Lewis, John H. Planting practice to reduce crop damage by jackrabbits, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, p. 277.

Surrounding barley fields with a strip of rye; the jackrabbits disliked the rye and did not penetrate it far enough to find the barley.

Control: Deer damage

Chapman, Floyd B. Deer damage control, Ohio Conservation Bul. (1106 State Office Bldg., Columbus 15, Ohio. 10 cents a copy), 10(9), Sept. 1946, pp. 12-13, 2 photos.

Popular article discussing fences, buffer crops, repellents, and frightening devices useful in preventing damage by deer. Bibliography of 6 titles.--Lee E. Yeager.

Control: Effects of DDT

Hotchkiss, Neil, and Richard H. Pough. Effect on forest birds of DDT used for gypsy moth control in Pennsylvania, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 202-207.

Bird populations of tracts in Lackawanna County were censused before and after spraying of DDT mixtures from airplanes. Studies were made also on a check area. Authors' conclusions: "(1) A single airplane application of DDT in oil at 5 pounds per acre to a forest in northeastern Pennsylvania at a time of great activity among plants, insects, and birds resulted in the death of birds and a conspicuous reduction in the breeding population. From the finding of several affected birds in a small portion it was concluded that the initial kill was high. The continued reduction in population may have been due to initial kill or to the exclusion of birds through a reduced food supply; (2) a single application at 1 pound per acre under similar conditions had no measurable effect on the breeding birds; (3) reduced insect populations resulted from both concentrations of DDT and this reduction may affect insect populations of the following year, hence the ultimate effects can be determined only by study of each of these areas during June 1946."

Control: Effects of DDT

Mitchell, R. T. Effects of DDT spray on eggs and nestlings of birds, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 192-194, 2 tables.

Report on experiments at the Patuxent Research Refuge, Md., which are summarized as follows: "Thirty-four nests of 11 species of birds containing eggs, and 38 nests of 12 species containing young of various ages, were used to determine the effect of applying DDT spray. Seventeen of the nests containing eggs and 19 of those containing young were left unsprayed as checks. The spray consisted of 1 pound of DDT to 2 pints of xylene diluted in fuel oil to make 1 gallon, and was applied by a hand atomizer over an area of 1 square foot surrounding and including each nest, at a dosage equivalent to 5 pounds of DDT per acre. This treatment evidently had no detrimental effect upon the hatching

of eggs or development of young; it was not observed to cause abandonment of nests even when located in confined quarters."

Control: Effects of DDT

Stewart, Robert E., James B. Cope, Chandler S. Robbins, and John W. Brainerd. Effects of DDT on birds at the Patuxent Research Refuge, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 195-201, 1 fig., 4 tables.

Description of experimental spraying at the Patuxent Research Refuge, Md. Authors' conclusions: "The spraying of DDT at the rate of 2 pounds per acre on a tract of land within the well-drained bottomland forest at the Patuxent Research Refuge on June 5, 1945, had little or no effect on the bird population of the area, with the possible exception of the redstart (Setophaga ruticilla). Considerable evidence was accumulated showing that this species was probably somewhat reduced. The effective dose for the treated area as a whole was decidedly less than 2 pounds of DDT per acre. Some spray was blown away to be deposited on nearby areas, and much of it was screened out by the dense forest canopy. The redstarts, being tree top feeders, were exposed to more DDT than most of the local birds."

Control: Effects of DDT

Stickel, Lucille F. Field studies of a Peromyscus population in an area treated with DDT, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 216-218.

Author's conclusions: "Measurement of the effect on the normal deer mouse population of an aerial application of 2 pounds of DDT per acre was made in a bottomland forest area on the Patuxent Research Refuge in May and June 1945. Amounts of DDT reaching ground level under the almost complete tree canopy averaged 0.05 pounds per acre on the open forest floor and 0.008 pound per acre in areas protected by both trees and some form of ground cover. The deer mouse population was exposed to DDT in the form of oil or crystals on vegetation and trees, and of DDT-killed insects. Both plant materials and insects are normal constituents of the deer mouse diet. Possible effects on the deer mouse population were tested by a standardized method of live-trapping, marking, and releasing of animals in the area to be treated with DDT and in a check area, on May 2 to 7 and June 14 to 19. The DDT was applied on June 5. Comparison of the numbers of animals taken in the two areas during the two trapping periods gave no evidence of any adverse change in the population as a result of the DDT application. Because of the limited amount of DDT reaching the ground level, general conclusions concerning its effect on wild populations of deer mice or other small mammals require further studies."

Control: Effects of DDT

Storer, Tracy I. DDT and Wildlife, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 181-185.

Review of the history of DDT, of information on its effects upon laboratory animals and on wildlife, and suggestions for further research. Bibliography of 16 titles, four of which are lists or digests of literature.

Control: Ground squirrel, California

Horn, Everett E., and Henry S. Fitch. Trapping the California ground squirrel, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 220-224, 2 figs.

Authors' summary: "California ground squirrels were found to be wary of all kinds of traps; even blind-set, steel traps are usually detected and avoided. The squirrels' habit of moving cautiously, with alert inspection of the surrounding ground for snakes and other enemies, makes them difficult to catch. A wire box trap with a sensitive pendulous trigger was far more successful than any of the other devices tried. Grain baits were most attractive to the squirrels; of those tried wheat and whole barley were preferred. Bait acceptance is poor during a period of weeks in late spring when many kinds of food plants on the range are maturing."--Lee E. Yeager.

Control: Turtles

Anon. Turtle trapping. Fishery Leaflet 190 (U. S. Fish and Wildlife Service, Merchandise Mart, Chicago 54, Ill.), 4 pp., 3 plates (processed), May 1946.

Turtles have values and control should be discriminating. Various methods are discussed, with most emphasis on trapping, suggestions for which, with illustrations of 3 types of traps, are given. Keeping turtles available for food and dissecting them for such use are described.

Cycles: Hare, Snowshoe

Bailey, Robert A. Reading rabbit population cycles from pines, Wis. Conservation Bul. (Wisconsin Conservation Dept., Madison 2), 11(7), July 1946, pp. 14-17, 1 sketch.

Use of rings and branch whorls in conifers to determine length of period between snowshoe rabbit population highs, and thus the average length of cycles.--Lee E. Yeager.

Cycles: Hare, Snowshoe

Chitty, Helen. The snowshoe rabbit enquiry 1942-43, Canadian Field-Naturalist (I. L. Conners, Central Experimental Farm, Ottawa, Canada. 40 cents a copy), 60(3), May-June 1946, pp. 67-70, 4 maps, 2 tables.

The twelfth report in a series beginning in 1931. Author's summary: "Reports from 555 observers in Canada, the United States and Alaska revealed wide variations in the state of the population of the snowshoe rabbit or varying hare, Lepus americanus, during 1942-43. In the prairie provinces, the

previous year's peak had been passed, rabbits were decreasing and considerable numbers of corpses had been seen. In all other parts of their range they were at their peak or still in the recovery phase except in Nova Scotia where the cycle was probably near or at its lowest. The situation is much the same as that in 1933-34."

Destruction: Manatee

Baughman, J. L. Some early notices on American manatees and the mode of their capture, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 234-239.

Review of literature (dating back to 1516) and accounts of capture, describing use of harpoons, fish arrows, weirs, and nets. Bibliography, pages 238-239.--Lee E. Yeager.

Destruction: Swallows, Tree

Dence, Milford A. Tree swallow mortality from exposure during unseasonable weather, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(3), July 1946, p. 440.

At Syracuse, N. Y., cold and wet weather induced pneumonia that killed some birds, and so weakened others that they were drowned.

Diseases and Parasites: Dental caries

Hall, E. Raymond. Dental caries in wild bears, Trans. Kansas Academy of Science (Robert Taft, University of Kansas, Lawrence), 48(1), June 1945, pp. 79-85, 4 pls.

Two percent of the bear skulls examined but none of other carnivores and insectivores showed evidence of dental caries. The cause is postulated in food habits which are discussed. The lesions are described and illustrated. From author's review: "Bears (subgenera Ursus and Euarctos) are more frequently afflicted with dental caries than are other wild carnivores, probably because these bears normally eat much food rich in sugar. Supporting this probability is the circumstance that other wild carnivores, for example, raccoons, ringtailed cats, and gray foxes in all of which dental caries is rare or absent, eat the same general classes of foods when of subadult age as do bears, sweets excepted."

Diseases and Parasites: Plague

Barnett, S. A. Carriage of plague by the common brown rat (Rattus norvegicus), Nature (St. Martin's St., London, W. C. 2, England. 1 shilling, 6 pence a copy), 157(3978), Jan. 26, 1946, p. 105.

Although the black rat (R. rattus) was principally involved in the historic plagues of Europe, the brown rat is definitely known to be a carrier. Evidence collected during an outbreak on Malta in 1945 is cited.

Diseases and Parasites: Plague

Lahnum, Willard H. Mammals and plague distribution in the United States, U. S. Naval Medical Bul. (Supt. of Documents, Washington 25, D. C. 30 cents a copy), 46(5), May 1946, pp. 782-785, 2 tables.

Brief history of plague in the United States with list of known cases 1900-1944 (504 of which 318 were fatal) and tabulation of the mammals found to be infected, or to harbor ectoparasites infected, with plague. These are listed by English and scientific names, and notes are given on the state, locality, and year of plague occurrence.

Diseases and Parasites: Tularemia

Cohen, Richard B., and Richard Lasser. Primary tularemic pneumonia treated with streptomycin, Journ. American Medical Assoc. (535 N. Dearborn St., Chicago 10, Ill. 25 cents a copy), 131(14), Aug. 3, 1946, pp. 1126-1127, 3 figs.

A case of primary pneumonic tularemia apparently cured. In ten days 7,062,000 units of streptomycin were given, with clinical improvement and fall in temperature from 104 to 100 F in 48 hours. Penicillin and sulfonamides were ineffective. Victim, a negro stevedore in Brooklyn; case history involved handling of a rabbit shot on Long Island about three days before onset of illness. Bibliography of 9 titles.--Lee E. Yeager.

Diseases and Parasites: Tularemia

Kursban, M. J., and Lee Foshay. Tularemia acquired from the pheasant, Journ. American Medical Assoc. (535 N. Dearborn St., Chicago 10, Ill. 25 cents a copy), 131(18), Aug. 31, 1946, pp. 1493-1494, 1 chart.

General statement about tularemia carriers of which the cottontail is chief; report on a case caused by eating pheasants killed in South Dakota; the principal factor in cure after conspicuous development of the disease was streptomycin.

Diseases and Parasites: Tularemia

Williams, Ralph B. Tularemia. First case to be reported in Alaska. U. S. Public Health Reports (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 61(24), June 14, 1946, pp. 875-876.

Review of the natural occurrence of tularemia in Alaskan hares; this human case possibly was acquired from muskrats. Summary of the U. S. and world occurrence of human tularemia.

Diseases and Parasites: Typhus fever

Cole, La Mont C., and Jean A. Koepke. A study of rodent ectoparasites in Mobile, Ala. U. S. Public Health Reports (Supt. of Documents, Washington, D. C. 10 cents a copy), 61(41), Oct. 11, 1946, pp. 1469-1487, 10 tables.

A result of typhus fever studies. Brief description of Mobile; history of the work; composition of the material studied (a few native species as well as the preponderant Rattus, and their parasites); host, seasonal, and local variations in parasitization; relation of ectoparasite counts to meteorological factors; and discussion. The natural vectors of typhus to man are not definitely known, but these studies indicate Xenopsylla cheopis (the principal carrier of plague) as the most probable, and Laelaps hawaiiensis as a possible, vector. Bibliography of 40 titles.

Diseases and Parasites: Acanthocephala, Macracanthorhynchus

Moore, Donald V. Studies on the life history and development of Macracanthorhynchus ingens Meyer 1933, with a redescription of the adult worm, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 32(4), Aug. 1946, pp. 387-399, 2 pls., 7 figs.

Adult worms used in studies recovered from raccoons (Procyon lotor lotor L.) trapped in Angelina County, Texas. Eleven of 13 raccoons were infested with M. ingens, and up to 90 of these acanthocephalans were recovered from a single raccoon. Intermediate hosts so far determined are grubs of the scarabaeid beetles: Phyllophaga crinita, P. hirtiventris, and Ligyrus sp. Details of life history and redescription of adult worm given. Bibliography of 15 titles.--Lee E. Yeager.

Diseases and Parasites: Acarina, Cheyletiella

Cooper, Kenneth W. The occurrence of the mite Cheyletiella parasitivorax (Megnin) in North America, with notes on its synonymy and "parasitic" habit, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 32(5), Oct. 1946, pp. 480-482.

Principal host, the domestic cat, but recorded also from snowshoe hare and cottontail. It "is most probably a predator of soft-bodied mites parasitizing the mammalian host." Bibliography of 11 titles.

Diseases and Parasites: Acarina, Ixodes

Cooley, R. A. Ixodes holdenriedi, a new species of tick from a pocket gopher in California (Acarina, Ixodidae), Pan-Pacific Entomologist (California Academy of Sciences, San Francisco. 75 cents a copy), 22(3), July 1946, pp. 103-104, figs.

Description, measurements, illustrations, comparative notes. From Thomomys bottae.

Diseases and Parasites: Acarina, Trombicula

Brennan, James M. Two new species of Trombicula: T. montanensis and T. aplodontiae (Acarina, Trombiculidae) from northwestern United States, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 32(5), Oct. 1946, pp. 441-444, 2 figs.

Primarily from Cynomys l. ludovicianus, Montana, and Aplodontia r. rufa, Washington, respectively. Descriptions, measurements, illustrations.

Diseases and Parasites: Anoplura, Neohaematopinus

Rubin, G. J. Three new species of Neohaematopinus (Anoplura, Haematopinidae), Proc. Entomological Soc. Washington (Bureau of Entomology and Plant Quarantine, Washington 25, D. C. 50 cents a copy), 48(5), May 1946, pp. 119-124, 2 pls.

One, N. patiki, is from Citellus, Utah; description, measurements, illustrations. Key to three new, and two other closely related, species.

Diseases and Parasites: Blood parasites

Clarke, C. H. D. Some records of blood parasites from Ontario birds, Canadian Field-Naturalist (I. L. Conners, Central Experimental Farm, Ottawa, Canada. 40 cents a copy), 60(2), March-April 1946, p. 34, folded table.

Occurrence of parasites, identified only to genera or larger groups, in 111 birds representing numerous species.

Diseases and Parasites: Cestoda, Cladotaenia

Crozier, Bruce U. A new taeniid cestode, Cladotaenia banghami, from a bald eagle, Trans. American Microscopical Soc. (James E. Ackert, Kansas State College, Manhatten), 65(3), July 1946, pp. 222-227, 1 pl.

From Ohio; description, measurements, illustrations; diagnostic characters of 11 previously described species of the genus from birds. Bibliography of 12 titles.

Diseases and Parasites: Helminths in Massachusetts

Rankin, John S., Jr. Helminth parasites of birds and mammals in western Massachusetts, American Midland Naturalist (Notre Dame, Ind. $1.00 a copy), 35(3), May 1946, pp. 756-768, table.

Seventeen species of nematodes, 13 of cestodes, 8 of trematodes, and 2 acanthocephalans obtained from 9 species of birds and 14 of mammals. Host catalog, notes on the occurrence of each form, and two-page bibliography.

Diseases and Parasites: Protozoa, Plasmodium

Fallis, A. Murray. Plasmodium circumflexum (Kikuth) in ruffed grouse in Ontario, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 32(4), Aug. 1946, pp. 345-353, 7 figs.

This plasmodium, apparently a strain of P. circumflexum, is seemingly not pathogenic in grouse, at least when the infection is produced by the transfer of asexual parasites. It is probably not a factor, therefore, in causing periodic dying off of the ruffed grouse in Ontario. Bibliography of 8 titles.--Lee E. Yeager.

Diseases and Parasites: Of armadillo

Chandler, Asa C. Helminths of armadillos, Dasypus novemcinctus, in eastern Texas, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 32(3), June 1946, pp. 237-241.

Author's summary: "In a series of eight armadillos examined, only one worm was found, Aspidodera fasciata, for which this mammal can be considered the normal definitive host. The only other adult worm was the fluke, Brachylaemus virginianus, normally parasitic in opossums. Immature intestinal specimens of a Hamanniella, found in one armadillo, are probably misplaced specimens of H. tortuosa, also normally parasitic in opossums. Encysted larvae of two spiruroids of pigs, Physocephalus and Ascarops, and encysted larvae of Oncicola canis, were found in a number of the animals. In all these cases, since the majority of the larvae were dead and many calcified, it is believed that the armadillo serves as a means of destruction of these parasites rather than as a transport host." Bibliography of 13 titles.

Diseases and Parasites: Of birds

Hartman, Frank A. Notes on the pathology of a loon and a pelican, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(4), Oct. 1946, pp. 588-589, 1 pl.

A loon had "extensive mold infection throughout the abdominal and thoracic cavities"; the pelican harbored hundreds of roundworms. No further identification. Florida.

Diseases and Parasites: Of deer, black-tailed

Cowan, Ian McTaggart. Parasites, diseases, injuries, and anomalies of the Columbian black-tailed deer, Odocoileus hemionus columbianus (Richardson), in British Columbia, Canadian Journ. Research (National Research Council, Ottawa. 50 cents a copy), D, 24, June 1946, pp. 71-103, 5 pls., 1 fig., 5 tables.

Author's abstract: "The occurrence of parasites, parasitic disease, some non-parasitic diseases, and certain anomalous conditions in the Columbian black-tailed deer, Odocoileus hemionus columbianus (Richardson), in southern

British Columbia is outlined. The parasitological findings are in two categories: those based upon a random sample of 40 wild deer, and those based upon 25 additional deer examined in their entirety and others in part. Twenty-five species of parasites, 8 arthropods and 17 helminths, were recovered. Comparison of parasitism in young and adult deer reveals a few differences in the species of parasites present but both age groups are almost equally susceptible to arthropods and to helminths. Five species of parasites, Cephenemyia jellisoni, Oesophagostomum venulosum, Dictyocaulus viviparus, Fascioloides magna, and Nematodirus filicollis, were found to induce disease that was not infrequently fatal. Some evidence was secured that cursorial predators selectively remove the more heavily parasitized deer.

"Ten anomalous conditions arising from non-parasitic disease, injury, or congenital deformity are described but none of these was sufficiently frequent to take an important place in the life equation of the deer. Incidence figures are given for various anomalies of form and position of the teeth and for dento-alveolar abscesses and one instance of caries and one of paradontal disease are reported. The study did not include bacteria and viruses as agents causing disease in deer and the only pathogenic micro-organism identified was Actinomyces israeli." Bibliography of 25 titles.

Diseases and Parasites: Of muskrat

Errington, Paul L. Special report on muskrat disease. Quarterly Report Iowa Cooperative Wildlife Research Unit, July-Sept. 1946, pp. 34-51 (mimeographed). State College, Ames, Iowa.

Occurrence, symptoms, and lesions of a disease, the causative agent for which has not yet been identified. It has decimated muskrat populations in certain Iowa localities and an apparently similar, if not the same, malady has been reported destructive also in Ohio, Michigan, Wisconsin, Minnesota, Montana, and Canada.

Diseases and Parasites: Of muskrat

McDermid, A. M. Report on muskrat disease outbreak, Wisconsin Conservation Bul. (Wisconsin Conservation Dept., Madison 2), 11(8-9), Aug.-Sept. 1946, pp. 21-22.

Discussion of findings, involving possibly three diseases; and of the possibility of their transmission to man; two cases of tularemia were apparently contracted through skinning muskrats. Author's summary: "The Conservation Department has definitely established that an outbreak of Tularemia and 'Errington's Disease'[*] did exist during at least March and April 1946 on the Horicon Marsh. The crest of the fatal wave of disease has passed for the present. It is known that the organism causing Tularemia can exist in sub-zero temperatures for many years and again become disease producing when the proper contact is made. It now remains for time to tell whether the residual infection remaining in the Horicon Marsh will again appear in endemic proportions if and when the population of muskrats increases to or above a normal."

* See preceding abstract.

Diseases and Parasites: Of sparrow, savannah

Williams, Ralph B. Ixodes auritulus on a savannah sparrow, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(4), Oct. 1946, p. 590.

Alaska.

Ecology: Biotic areas

Larrison, Earl J. Biotic areas in the Pacific Northwest, Murrelet (Pacific Northwest Bird and Mammal Soc., Washington State Museum, Seattle 5. 70 cents a copy), 27(2), May-Aug. 1946, pp. 19-24.

Brief discussion of types of areas previously proposed; definition of terms for a biotic province-life belt system; characterization of Oregonian and Palusian biotic provinces; and discussion of anthropic habitats (those changed by man). Bibliography of 12 titles.

Ecology: Catskill forest birds

Kendeigh, S. Charles. Breeding birds of the beech-maple-hemlock community, Ecology (Prince and Lemon Sts., Lancaster, Pa. $1.50 a copy), 27(3), July 1946, pp. 226-245, 3 figs., 5 tables.

Report on study in the Catskill Mountains, N. Y., including summary of related previous investigations, and description of succession and avian use of the plant communities, and account of the present and historical distribution of forest birds in the region. Application of life-zone and biome concepts to the findings is discussed and the paper summarized. "The biome and life-zone concepts, as far as they apply to this region, may be harmonized if the Canadian life-zone and the evergreen forest biome are considered equivalent, the Carolinian faunal area of the upper austral life-zone and the deciduous forest biome synonymous, and the Alleghanian faunal area of the transition life-zone an ecotone or mixture and intermingling of the first two." Bibliography of 30 titles.

Ecology: Desert mammals

Vorhies, Charles T. Water requirements of desert animals in the Southwest. University of Arizona (Tucson) Technical Bul. 107, pp. 485-525, 4 pls., 9 figs., June 1945.

Discussion of previous treatments of the subject for both plants and animals; methods of the study; and discussion of the findings by species. The ecology of mesquite forest is compared with that of the desert. Author's summary: "(1) The microclimates of selected desert mammals, living in the same general environment, were investigated by means of soil thermographs and hygrothermographs, supplemented by rain gauges, thermometers, and psychrometer; (2) the food habits of each species are correlated with its habitat and microclimate; (3) the kangaroo rat (Dipodomys spectabilis) eats mostly air-dry food,

mainly seeds, with a minimum water content, yet the animal seldom if ever takes free water. Its deep burrowing and nocturnal habits and its physiology conserve water; (4) the wood rat (Neotoma albigula) does not drink, but uses more succulent food. It is less strictly nocturnal than Dipodomys and lives in a shallower and less well-protected burrow; (5) the round-tailed ground squirrel (Citellus tereticaudus) uses much succulent food and drinks when water is available. Its diurnal habit requires more moisture, which is partially compensated for by a deep burrow into which it may retreat during the hottest hours, and in which it lies dormant through the autumn drought; (6) the jack rabbits (Lepus spp.) are mainly nocturnal, but have no such shelter as a burrow against heat and desiccation by day. Only under most unusual circumstances do they drink, perhaps never in their normal existence. The more they need water, the less likely is it to be available. Their food is highly succulent, mainly mesquite and cactus, with the latter increasingly consumed as drought conditions increase; (7) a comparison of the climate of the mesquite forest with the adjacent desert mesa shows a less extreme climate in the forest, especially as to atmospheric humidity and soil-surface temperature. Nevertheless more mammals, both as to species and individuals, live in the desert environment. This is especially true of the Heteromyidae, the kangaroo rats and pocket mice." Bibliography of 31 titles.

Ecology: Populations, armadillo

Taylor, Walter P. Armadillos abundant in Kerr County, Texas, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, p. 273.

Unweighted average of active armadillo dens per acre in 1945 was 1.23. This indicates a population in excess of 640 animals per square mile on favorable range.--Lee E. Yeager.

Ecology: Populations, partridge and pheasant

Bach, Roy N. The status of the pheasant and Hungarian partridge in North Dakota, North Dakota Outdoors (Capitol Bldg., Bismarck, N. Dak. 5 cents a copy), 9(4), Oct. 1946, pp. 3-4, 1 map, 2 graphs.

Record in text and graphs of population fluctuations, 1941-1946; weather seems to be a much more important factor than hunting in affecting numbers of the birds. The pheasant population has declined since 1944 and that of the partridge has reduced throughout the period of the investigation. The map shows the varying density of pheasant distribution in the State.

Ecology: Rodent of mixed prairie

Brown, H. Leo. Rodent activity in a mixed prairie near Hays, Kansas, Trans. Kansas Academy of Science (Robert Taft, University of Kansas, Lawrence), 48(4), March 1946, pp. 448-456, 3 tables.

The study area and methods are described and the rodents treated as to their utilization of the facilities of the habitat. Notes on life history, food, and populations of 6 species are included. Bibliography of 12 titles.

Economics: Beaver

Anon. The law and the beaver. Fur trade and the beaver, Wyoming Wild Life (Wyoming Game and Fish Commission, Box 335, Cheyenne), 10(8), Aug. 1946, pp. 4-11, 36-38, 3 photos, 1 graph, 1 table.

The beaver population of Wyoming, after a degree of restoration, is again decreasing because of overtrapping, much of it done under free permits issued upon claims of damage. What to do about the situation is discussed. The second article deals with the importance of the beaver to pioneers and the history of the fur trade in the West. The take of beaver skins in Wyoming for each of the last 26 years is enumerated in table and graph. The value of the animal's water conserving activities is stressed and its life history is outlined. One of the photographs, of a series of beaver dams, is particularly excellent.

Economics: Beaver, Washington

Resner, O. L. An industrious animal--the beaver, Washington Outdoors (714 Pacific Ave., Tacoma 2, Wash. 25 cents a copy), 1(3), June 1946, pp. 6-7, 2 photos.

Notes on early value of the beaver, including quotations from the journal of a trading post in 1834 on receipts of this and other animal skins. It was not until 1913 that beavers were given protection by a closed season. That with a transplanting campaign resulted in great increase. The State game department now traps the animals under agreements with landowners who receive 40 percent of the net proceeds from the sale of beaver pelts taken on their property. Their returns this year are estimated at $30,000.

Economics: Fur, North Dakota

Struwing, Nels J. Report on N. D. fur harvest, North Dakota Outdoors (State Game and Fish Dept., Bismarck, N. Dak. 5 cents a copy), 8(1), July 1946, p. 11, 2 tables.

Tabulation of average prices paid for, and number and value of, furs 1941-42 to 1945-46, with comment. Total for the last year 511,484 pelts of 11 groups of mammals, bringing $1,414,797.

Economics: Fur animals, Oregon

Kebbe, Chester E. Oregon's fur resources, Oregon State Game Commission Bul. (Box 4136, Portland 8), 1(8), Nov. 1946, pp. 1, 6-7, 1 photo, 2 maps.

Early fur resources were rich; the present aim is to rebuild them so far as practicable. Statistics on the 1945-46 catch, value about $500,000. The fur animals of the State are discussed under the heads of "(1) Those that cannot adjust themselves to civilization and a changed habitat; (2) animals that can adapt themselves readily to agricultural practices; (3) predators, and

(4) exotics or introduced species." The maps show the county distribution of the minks and muskrats taken in 1945-46.

Economics: Income from farm game

Gee, C. W. Money from marshes, Soil Conservation (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 11(12), June-July 1946, pp. 270-271, 279, 2 photos.

A Minnesotan in 3 years trapped muskrats from 100 acres of marsh on his farm, the pelts of which sold for $2,425. Hunting rights on the entire 400 acres have been leased for from $175 to $225 a year.

Education: Hoofed animals (except deer)

Goodwin, George G. Hoofed animals of North America. Part II-Animals with hollow horns, and Part III--Wild pigs. School Nature League Bul. (National Audubon Society, 1000 Fifth Ave., New York 28, N. Y. 15 cents a copy), 17(2), Oct. 1946, 4 pp., 6 photos.

Brief but authoritative summaries of information on bison, muskox, mountain sheep, mountain goat, pronghorn antelope, and peccary..

Education: Learning eastern land birds

Pough, Richard H. Audubon bird guide. Eastern land birds (Doubleday & Co., Inc., 14 West 49th St., New York 20, N. Y. $3.00 a copy), xxxvii+312 pp., 48 col. pls., 2 black and white pls., 2 maps.

The best yet of its kind, especially on account of its good colored pictures by Don Eckelberry which are mostly well reproduced. As Robert Cushman Murphy says: "This book is the first work of pocket size which has solved the problem of including a colored portrait of every species within its scope. The goal has been attained with consummate success." The ornithological provinces of North America are delineated and as the western boundary of the eastern area traverses the zone between humid and arid regions in the Great Plains, some rather occidental birds are included. 275 species are treated and 400 colored figures illustrate them (including differing age, seasonal, and sex plumages). The foreword explains the scope of the work, and comments on bird names, variation in appearance, voice, behavior, distribution, habitat and territorial requirements, movements, and economic relations, of birds, and makes suggestions on enjoying, studying, and conserving birds. The accounts of species include paragraphs on identification, habits, voice, nest, and range, which summarize essential information. The 3-1/2 page bibliography is classified by subjects. May similar treatment be extended to other North American regions and to the water birds.

Education: Outdoor

Palmer, E. Laurence. Outdoor education, Cornell Rural School Leaflet (New York State College of Agriculture, Ithaca), 40(1), Sept. 1946, 64 pp.

Outline of outdoor education intended to insure maximum use of experiences in the open. Of special interest to readers of WILDLIFE REVIEW are the sections on cold-blooded animals, mammals, and birds. Each discusses living with the subjects, cites useful publications, and makes teaching suggestions.

Education: On resources of Kentucky

Authors. Kentucky's resources. Their development and use, Bulletin of the Bureau of School Service (University of Kentucky, Lexington), 18(2), Dec. 1945, 351 pp., illus.

The chapter on wildlife (pp. 169-208) apparently was prepared by a subcommittee headed by Earl Wallace. It includes a historical discussion, pays attention to economic values, destructive factors, conditions affecting wildlife, administration, and management, and gives lists (by vernacular names) of species occurring in the State.

Education: Wildlife management

Bennitt, Rudolf. University objectives in professional wildlife training, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 218-227.

A cooperative wildlife research contribution. Problems due to postwar increase in the number of students and the still unsettled philosophy and standards of training in wildlife management are discussed. The author deems this employment a profession but says, "its professional standing is not yet universally recognized." Further recognition depends a great deal on the educational preparation of its personnel. Vocational and even extension training may play a part in better qualifying some workers in this field. College training is discussed for undergraduates and for candidates for the Master and Doctor degrees. Qualifications of the student and the requirements of wildlife managers, especially in public relationships, are discussed. The paper is summarized and general suggestions are made as to future training in the field.

Food Habits: Birds vs. dragonflies

Wright, Mike. The economic importance of dragonflies (Odonata), Rep. Reelfoot Lake Biol. Sta. (Tennessee Acad. Sci., Nashville), 10, Jan. 1946, pp. 60-71.

On pages 63-64 is compiled information on wild ducks as predators on dragonfly nymphs.

Food Habits: Competition

Van Tyne, Josselyn. Starling and brown thrasher stealing food from robins, Wilson Bul. (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 58(3), Sept. 1946, p. 185.

In Michigan; robins passive. The same phenomena have been observed elsewhere with English sparrows as aggressors.

Food Habits: Fox-quail relationship

Hart, Dennis. The fox-quail problem in North Carolina, Wildlife in North Carolina (Division of Game and Inland Fisheries, Raleigh. 15 cents a copy), 10(3), pp. 13, 18.

Decline of the population of quail and increase in that of foxes have been popularly interpreted as effect and cause and brought the usual demands for better control of foxes. The author reviews information on food habits of these mammals and points out that they are blamed for quail destruction by other agents. Means of control are considered and fox hunting given preference.

As the population phenomena noted have been observed in various northeastern states, it would seem that the possibility of their being cyclic should be emphasized.

Food Habits: Mouse damage to conifers

Littlefield, E. W., W. J. Schoonmaker, and David B. Cook. Field mouse damage to coniferous plantations, Journ. Forestry (825 Mills Bldg., Washington 6, D. C. 50 cents a copy), 44(10), Oct. 1946, pp. 745-749, 2 photos.

In Montgomery County, N. Y., Microtus pennsylvanicus, at two cyclic peaks, 1938-39 and 1942-43, seriously damaged Scotch pine and Douglas fir. Other trees were little affected. Possibilities of control are discussed. Bibliography of 9 titles.

Food Habits: Utilization of conifer seeds

Blackford, John L. Cone year, Nature Magazine (1214 Sixteenth St., N. W., Washington 6, D. C. 35 cents a copy), 39(8), Oct. 1946, pp. 409-412, 442, 5 photos.

Popular account of several kinds of birds and mammals feeding on conifer seeds. Kootenai River country.

Food Habits: Utilization of jack pine seeds

Aldous, Shaler E. Jack pine regeneration retarded by rodents and birds, Technical Notes (Lake States Forest Expt. Station, University Farm, St. Paul 8, Minn.), No. 259, 1 p. (processed) July 1946.

Report on analyses of the stomach contents of mammals and birds collected where seeds of jack pine were freely available. Ten of 14 species had eaten them. The author's conclusions are: "(1) Only a few birds and mammals seriously deplete the jack pine seed supply; (2) the species eating the most seed are those which thrive best and occur in the greatest numbers on cleared areas; (3) direct seeding the first spring after fires or logging operations will insure the least destruction of seed by animals as well as a minimum of early vegetative competition; (4) treat the seeds with a repellent mixture that

will deter the birds and rodents; (5) cover the seeds with mineral soil to help hide them from animals, hasten germination, and improve subsequent survival."

Food Habits: Utilization of moonseed fruits

Breiding, George H. Moonseed fruits as bird food, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(4), Oct. 1946, p. 589.

Field observations on cedar bird; Fish and Wildlife Service records for 4 other species.

Food Habits: Of blackbird, Brewer's

Knowlton, George F., and P. E. Telford. Insects eaten by Brewer's blackbirds, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(4), Oct. 1946, p. 589.

Summary of the contents of 6 stomachs from Utah. "This interesting blackbird is sufficiently abundant in many parts of Utah to be of importance in the control of cutworms, grasshoppers and certain other insect pests, when it comes in flocks to feed upon such abundant sources of insect food."

Food Habits: Of bluebird, mountain

Knowlton, G. F., and F. C. Harmston. Insect food of the mountain bluebird, Journ. Economic Entomology (E. N. Cory, College Park, Md. 75 cents a copy), 39(3), June 1946, p. 384, table.

Tabulation of insects identified from 194 stomachs collected in Utah. Grasshoppers, lygaeid bugs, leaf-hoppers, dung beetles, caterpillars, and ants were numerically important food animals.

Food Habits: Of coot and wood duck

Schoffman, Robert J. A preliminary report on the food of ducks at Reelfoot Lake, Tennessee, Rep. Reelfoot Lake Biol. Sta. (Tennessee Acad. Sci., Nashville), 10, Jan. 1946, pp. 10-13, 3 tables.

Comment on plants abundant in the Lake and report on food of coots and wood ducks in summer and fall. In the stomach contents volumetrically analyzed, duckweeds and coontail were first and second in order of importance for the coot, and seeds of cow-lily and duckweeds for the wood duck.

Food Habits: Of fox, red

Kase, John C. Foxes must eat too, Outdoor Indiana (401 State Library Bldg., Indianapolis 9), 13(4), June 1946, pp. 14-15, 3 figs.

Report on a Pittman-Robertson research project. Summary of analyses of the contents of 211 stomachs collected in winter principally in northern Indiana. A numerical system is used. Leading items were: rabbits in 88.6 percent of the stomachs; mice (57.8); non-game birds (31.8); poultry and pigs (19.9). Game bird remains were in only 10 percent of the stomachs. Comment on the results.

Food Habits: Of grouse, ruffed

Philippe, Lionel. L'Alimentation hivernale de la gelinotte à fraise, Bonasa umbellus togata L., dans la region de Montreal, Naturaliste Canadien (Quebec), 72(9-10), Sept.-Oct. 1945, pp. 235-240, 1 table.

English summary: "(1) 1337 fecal pellets of the St. Lawrence Ruffed Grouse collected in the Montreal area have been analysed; (2) buds, catkins and sprigs of the Yellow Birch (B. lutea) form 56.15% of the total bulk; (3) catkins, buds, sprigs and nuts of the White Birch (B. papyrifera) represent 31.00% of the total bulk; (4) Staghorn Sumac seeds (R. typhina) appear in 8.23% of all pellets; (5) Aspen buds (P. tremuloides) figure for 1.17%; (6) ten other species of minor importance compose the rest of the bulk (3.45%). These plants consist of the Winterberry fruits (I. verticillata), Knotweed seeds (Polygonum sp.), White Cedar leaves (T. occidentalis), Hawthorn fruits (Crataegus sp.), Wild Grape (V. vulpina), Red Maple buds (A. rubrum), Choke Cherry fruits (P. virginiana), Bunchberry fruits (C. canadensis) and leaves of an indeterminate species."

Food Habits: Of grosbeak, evening

Lunk, William A. Evening grosbeak in West Virginia, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(3), July 1946, p. 445.

Feeding on seeds of box elder in West Virginia. This is a common food for these birds visiting the United States.

Food Habits: Of hawk, Cooper's

Fitch, Henry S., Ben Glading, and Verl House. Observations on Cooper hawk nesting and predation, California Fish and Game (Ferry Bldg., San Francisco 11, Calif.), 32(3), July 1946, pp. 144-154, figs. 37-40, 1 table.

Account of the environment and available prey; description of the nest, behavior of the adults and young, feeding and growth of the latter, tabulation of food items observed at the nest. These included: 19 whiptail lizards, 5 valley quail, 4 unidentified lizards, 2 fence lizards, 2 California woodpeckers, 2 cottontails, and one each of skink, brown towhee, lark sparrow, and unidentified small bird.

Food Habits: Of hawk, red-tailed

Fitch, Henry S., Freeman Swenson, and Daniel F. Tillotson. Behavior and food habits of the red-tailed hawk, Condor (J. Lee Chambers, Robinson Road, Topanga, Calif. 50 cents a copy), 48(5), Sept.-Oct. 1946, pp. 205-237, 8 figs., 5 tables.

Results of studies in Madera County, California, reported under the heads of territoriality, voice, nesting, habits of fledged young, feeding (field observations and pellet analyses), and summary and discussion. The section on food habits is full, detailed, and valuable; ground squirrels were the principal prey with cottontails a distant second choice. Bibliography of 6 titles.

Food Habits: Of iguana, desert

Cowles, R. B. Note on the arboreal feeding habits of the desert iguana, Copeia (H. Graham Netting, Carnegie Museum, Pittsburgh 15, Pa. $1.00 a copy), 1946(3), Oct. 1946, pp. 172-173, pl. 1.

Habits of the animals, including their feeding on the flowers of creosote bushes (Larrea divaricata). California.

Food Habits: Of lizard, sagebrush

Knowlton, G. F., D. R. Maddock, and S. L. Wood. Insect food of the sagebrush swift, Journ. Economic Entomology (E. N. Cory, College Park, Md. 75 cents a copy), 39(3), June 1946, pp. 382-383, table.

Sceloporus g. graciosus; 2,191 stomachs collected in Utah during 16 years were examined. This lizard is abundant and its feeding habits are of economic significance. Leading groups of insects preyed upon are grasshoppers, leafhoppers, leaf-beetles, caterpillars, midges, and ants.

Food Habits: Of night heron, yellow-crowned

Price, Homer F. Food of a yellow-crowned night heron, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 63(3), July 1946, p. 441.

Crayfish, water beetle (Hydrophilus), and frog remains in nest debris in Ohio.

Food Habits: Of ptarmigan, willow

Dery, D. A. Preliminary report on the winter-diet of the willow ptarmigan in northern Quebec. Ann. Rep. Provancher Soc. (Quebec, Canada), 1945, pp. 77-81, 1 photo.

Reproduction of analyses of 27 stomach contents made by the Biological Survey and Fish and Wildlife Service, with a summary list of the plants repre-

sented by the identifications. Willow twigs and buds were the predominant food items.

Food Habits: Of rattlesnake, Pacific

Fitch, Henry S., and Howard Twining. Feeding habits of the Pacific rattlesnake, Copeia (M. Graham Netting, Carnegie Museum, Pittsburgh 13, Pa. $1.00 a copy), 1946(2), July, pp. 64-71, 1 table.

Crotalus viridis oreganus. The most extensive study of the food habits of a Fredonian snake, combining field observation (in California) and analysis of stomach contents (87) and scats (90). Leading items of food according to these analyses were Citellus beecheyi, Perognathus, Dipodomys, Peromyscus, and Sylvilagus. Field observations supplemented these results with evidence of some preying upon birds and the surprising finding that many (possibly a majority) of animals killed are not eaten.

Food Habits: Of reptiles

Knowlton, George F. Feeding habits of some reptiles, Herpetologica (Chapman Grant, 2970 Sixth Ave., San Diego 3, Calif.), 3(3), Aug. 1946, pp. 77-80.

Summaries of the results of stomach analyses of Utah specimens of Sceloporus g. graciosus, Phrynosoma orbiculare ornatissimum, P. p. platyrhinos, and Thamnophis ordinoides vagrens.

Food Habits: Of roadrunner

Monson, Gale. Road-runner preys on poor-will, Wilson Bul. (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 58(3), Sept. 1946, p. 185.

In Arizona.

Food Habits: Of squirrel, gray

Maggoner, D. M. The gray squirrel in western Vilas County, Wisconsin Conservation Bul. (Wisconsin Conservation Dept., Madison), 11(6), June 1946, pp. 3-5, 3 photos.

Red and hard maples were stripped of their bark by squirrels to get at the cambium; the squirrels were introduced to this locality in 1934.

Food Habits: Of waterfowl

Campbell, James M. The food of the wigeon and brent goose, British Birds (H. F. & G. Witherby, 326 High Holborn, London, England. 1 shilling 6 pence a copy), 39(7), July 1946, pp. 194-200, table; 39(8), Aug. 1946, pp. 226-232, 3 tables.

As the birds treated are conspecific with American forms, this account of their food habits may be of interest to some readers of WILDLIFE REVIEW. Emphasis is placed on local and seasonal variation in food habits and the report is so shaped as to bring out these particulars as far as practicable. The presentation is numerical. On that basis, Enteromorpha and Ruppia are preferred foods of the wigeon, and Enteromorpha and Zostera of the brent goose.

Introductions: Coypu in Great Britain

Laurie, E. M. O. The coypu (Myocastor coypus) in Great Britain, Journ. Animal Ecology (Cambridge University Press, 200 Euston Road, London, N. W. 1, England. 20 shillings a copy), 15(1), May 1946, pp. 22-34, 2 pls., 6 figs., 4 tables.

Bred on fur farms since about 1929, coypus, in a number of instances, have escaped and established themselves at various points in England and Wales. The author combines the results of observations in Great Britain with material gleaned from books, particularly on the animals in South America, and discusses: general characters, external parasites, habitat, food, burrows and nests, detection, damage, trapping methods, distribution, numbers, and reproduction. The coypu has caused some damage to crops and river banks. "More serious damage is being done to the reed-swamp vegetation which it feeds upon and tramples down." Bibliography of 18 titles.

Introductions: Squirrel, gray, in Great Britain

Shorten, Monica. A survey of the distribution of the American grey squirrel (Sciurus carolinensis) and the British red squirrel (S. vulgaris leucourus) in England and Wales in 1944-5, Journ. Animal Ecology (Cambridge University Press, 200 Euston Road, London, N. W. 1, England. 20 shillings a copy), 15(1), May 1946, pp. 82-92, 6 maps, 2 tables.

Results of a survey by questionary; since the similar investigation in 1937 (see WILDLIFE REVIEW, No. 13, March 1938, p. 8), the gray squirrel has extended its range in England and Wales, particularly westward. The red squirrel is more widely and thinly distributed but apparently is not being extirpated. Twenty-five percent of the sampled areas contained both species.

Life Histories: Bat, Big brown

Krutzsch, Philip H. Some observations on the big brown bat in San Diego County, California, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 240-242.

Author's summary: "Eptesicus in San Diego County either are migratory or hibernate in some yet undiscovered place, as they have been taken only in seven months of the year. These bats take wing early in the evening before darkness has set in, and continue feeding after complete darkness. They have been taken in all life zones of San Diego County and live in natural and man-made hiding places, often in association with other bats. Parturition occurs in late May or early June. Eptesicus usually have one young, rarely two."--Lee E. Yeager.

Life Histories: Bear, Black

Matson, J. R. Notes on dormancy in the black bear, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 203-212.

From author's summary: The condition of bears during their long sleep might be described as dormant, rather than torpid, in the sense that they are rather easily aroused to action. The accumulation of fat by bears seems to be an instinctive preparation for a period of food scarcity. If the accumulation is not sufficient, the activity of the bear may, and frequently does, continue during winter. When sufficient fat has been accumulated, the black bear ordinarily retires, without regard for temperature, to a secluded place and becomes dormant. The location of the winter sleeping place is a matter of indifference to the bear as long as it is secluded and on ground that is well drained. The location of the bed often suggests conscious provision for protection against prevailing winds. Due to a decreased rate of metabolism, a fat bear shows slight loss of weight during the dormant period. Following the dormant period their renewed activity rapidly depletes the store of fat while the animal is on a deficient diet (as in spring on a diet of grass). The fat continues to decrease until fattening foods are again available in quantity. The shrinking of the digestive organs seems to mark the end of the bear's interest in food, and the beginning of his desire for seclusion and sleep. The shrunken and semi-rigid condition of the stomach appears to make the taking of food impossible.--Lee E. Yeager.

Life Histories: Beaver

Nagel, W. O. The beaver--history maker--is coming back, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 7(9), Sept. 1946, pp. 6-7, 16, 2 photos with text, with 2-page spread of photos showing beaver activities, pp. 8-9, by Rex Gary Schmidt.

Brief history of beaver in Missouri, with details of the recent increase and spread of species in that State. Notes on food habits. Unusual and excellent photo of beaver swimming under water.--Lee E. Yeager.

Life Histories: Bluebird, Eastern

Thomas, Ruth Harris. A study of eastern bluebirds in Arkansas, Wilson Bul. (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 58(3), Sept. 1946, pp. 143-183, 1 fig., 5 tables.

Description of the study area (a farmstead) and methods; summary of the results of banding; discussion of migratory status; and presentation of results of observations on: Importance of nest; pairing and courtship; replacement of lost mates; the bond between mates; nesting cycle; nesting successes and losses; parental and juvenile behavior; territoriality; flocking; relations with other species; enemy recognition; voice; and temperament. Bibliography of 17 titles. Another productive study near home.

Life Histories: Cottontail

Cooley, Marvin E. Cottontails breeding in their first summer, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 273-274.

Two Michigan cottontails gave birth to young when only a few months old. Few such records over a six-year period indicates that breeding at this age is very unusual.--Lee E. Yeager.

Life Histories: Crane, Whooping

Stevenson, James O., and Richard E. Griffith. Winter life of the whooping crane, Condor (W. Lee Chambers, Robinson Road, Topanga, Calif. 50 cents a copy), 48(4), July-Aug. 1946, pp. 160-178, figs. 38-42, 1 table.

Outline of the winter range and description of the Aransas National Wildlife Refuge where most of the observations recorded in this paper were made. The number of whooping cranes seen on the refuge varied from 15 to 26 per season in the years 1938-45; age and family classes are differentiated. Observations on migration routes show larger numbers of whooping cranes but their wintering range is unknown. The paper deals with behavior, food, local names, plumages, and conservation and management. It is well that studies of the whooping crane are being made before it is too late, although of course it is fervently to be hoped that the species may be preserved indefinitely, precarious as its status now seems to be. Bibliography of 28 titles.

Life Histories: Deer, White-tailed

Bradt, G. W. The white-tailed deer--big business in the north country, Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(10), Nov. 1946, p. 4, 1 pl.

The distinctiveness and use of the antlers of deer; appearance and habits of the white-tail, with special attention to food; reproduction; fawns should not be picked up, because usually they are not lost, and when grown, the males are dangerous. In 1945 about 270,000 hunters killed 100,000 deer. Even more should be eliminated to keep the animals in balance with their food supply.

Life Histories: Deer, White-tailed

Swift, Ernest. Deer as an outdoor problem, Wisconsin Conservation Bul. (Wisconsin Conservation Dept., Madison 2), 11(7), July 1946, pp. 6-10.

A general statement on the deer problem in Wisconsin. Forest relationships, feeding, damage, and seasons are discussed.--Lee E. Yeager.

Life Histories: Deer, White-tailed, breeding potential

Morton, Glenn H., and E. L. Cheatum. Regional differences in breeding potential of White-tailed deer in New York, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 242-248, 1 fig., 1 table.

Factors governing breeding potential are discussed and the study regions are mapped and described. Methods and findings are stated and the paper summarized as follows: "A higher percentage (92.3 per cent) of the adult female white-tailed deer from the southern part of New York State had been successfully bred than (79.9 per cent) among specimens from the Adirondack region. A certain number of female fawns become sexually mature and pregnant in the autumn of the first year of life. The incidence of pregnancy in fawns from the southern region was 36.3 per cent, but only 4.2 per cent among those from the Adirondack region. The fawns bore fewer embryos per female than does more than one year of age. The ratio of single, twin, and triplet embryos among adult females from the southern region was about 3:6:1, and for the Adirondack region 8:2:1. Does of all ages from the southern region averaged a higher number of embryos than those from the Adirondack region. The deer herd in the Adirondack region evidently has a lower breeding potential than that in southern New York. Differences in the essential nutrients available to deer in the northern and southern parts of their ranges in New York probably are an important contributory factor to the disparities observed in breeding potential." Bibliography of 11 titles.

Life Histories: Deer, White-tailed, breeding season

Cheatum, E. L., and Glenn H. Morton. Breeding season of white-tailed deer in New York, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 249-263, 6 figs., 4 tables.

Accurate knowledge of breeding season is essential to rational establishment of open seasons. Discussion of proposed changes in hunting regulations brought out deficiencies in information on New York deer, which the research here reported upon was designed to overcome. Materials, methods, and findings are recounted and the paper summarized. From authors' summary: "The height of breeding condition, as evidenced by testis volume, is attained by most adult male white-tailed deer in New York by the end of the first week of November. Spermatogenesis may extend over eight months, beginning in July as found by Wislocki. Successful copulatory ability of the buck extends from September through February. Bucks in the first year of life apparently do not attain sexual maturity in the latitude of New York State. For New York as a whole, the peak of successful breeding among adult does is between November 10 and 23. Differences are demonstrable between the northern (Adirondack) and southern breeding seasons. By November 16, about half of the adult northern does had bred, but only one fourth of the southern adults. The peak of breeding in the north was from November 10 to 16, and in the south from November 17 to 23. The peak of successful breeding in the Catskill region does not differ significantly from that over the remainder of the southern region. Many doe fawns in the

southern part of the State appear to attain sexual maturity in their first year and many are successfully bred, but about four weeks later than are the adult does. Climatic factors may be responsible for regional differences in breeding seasons." Bibliography of 22 titles.

Life Histories: Falcon, Peregrine

Bond, Richard M. The peregrine population of western North America, Condor (J. Lee Chambers, Robinson Road, Topanga, Calif. 50 cents a copy), 48(3), May-June 1946, pp. 101-116, figs. 21-24, tables 1-3.

A supplement to Hickey's 1942 paper on the bird in eastern North America (abstracted in WILDLIFE REVIEW, No. 34, May 1942, pp. 39-40). It discusses and maps the breeding range and totals the number of known breeding sites from and including Mexico, northward--only 328. Factors affecting breeding, distribution, and density are considered, as are population fluctuations, and effect of the birds upon other wildlife (naming many food items). Hickey's plea that the name "duck hawk" be abandoned as prejudicial to the species is seconded and the following additional suggestions are made: "To urge continued efforts to educate the public as to the rarity, reputation, and harmlessness (at least as a species), looking to the day when enforceable laws can be passed for its protection; that authors and editors take care not to publish the location of an occupied eyrie; that further studies by means of banding as well as observation be undertaken." Bibliography of 31 titles.

"Duck hawks" are shot on sight by hunters--a procedure totally unjustified by the number of these birds, not to exceed 1,500 on the continent.

Life Histories: Fox, Red

Churcher, Paul. Red fox--resourceful resource, Conservation Volunteer (Minnesota Dept. of Conservation, State Office Bldg., St. Paul), 9(54), Sept.-Oct. 1946, pp. 8-12.

Popular article on some of the traits and habits of the red fox.--Lee E. Yeager.

Life Histories: Ground squirrel, California

Linsdale, Jean M. The California ground squirrel. University of California Press (Berkeley. $5.00 a copy), xi+475 pp., frontispiece, 1 map, 140 figs., 45+ tables, 1946.

Results of a decade of studies of Citellus beecheyi on the Hastings Natural History Reservation, Monterey County, California. Chapters relate to: Habitat, with much on dens, nest-building, home area, and relation to weather and vegetation; associated vertebrates, as those intruding in the ground squirrel's burrows, predators, and others; communication by sound, signal, and scent; and reception by hearing, vision, and smell; mannerisms; activity by day and season (including dormancy); food and feeding habits; diseases and parasites; reproduction; numbers; and structure (including molt). There is a chapter of summary and conclusions, a 4-1/2 page bibliography, and an adequate index. Obviously one of the most detailed studies of a mammal ever made.

Paragraphs on economic topics from the summary are: "Most of man's concern with the ground squirrel is as a potential destroyer of crops, either wild forage or cultivated plants. In many instances it is clear that squirrels are so injurious as to require their removal or some device to protect the crop they threaten. In others, the presence of squirrels in large numbers may be a symptom of unsuitable use of the land and they may become reduced after the misuse is corrected. The more nearly natural the cover of vegetation the less likely it is that squirrels can be unduly numerous and therefore injurious. This animal responds to disturbance of the soil in much the same manner as do some kinds of weedy plants.

"Observations on the Reservation have been sufficient to establish the certainty that squirrels on the area are subject to disease on occasion and that such illness may be fatal. Plague has existed in the region for many years.

"From the studies of plague, especially those recently made in California, it seems obvious that the ground squirrel is only one of many normal, mammalian hosts for the disease. The complicated interrelations involving numerous species of fleas, the normal insect vectors, make it impossible thus far to reach satisfactory conclusions about the true status of the disease, its effects on the rodent population, its range, and its behavior from year to year. This evidence is not conclusive on the possibilities of man's acquiring the disease. However, it has been amply demonstrated within the last half century that people in California have been infected by plague carried by wild rodents only in rare instances. It has not been shown that attempts to restrict the disease by killing wild mammals has had any appreciable effect on the persistence or spread (if there has been spread) of the bacteria. It is conceivable that without these disturbances to the mammal population the disease would be even less active than it now is. Plague studies have been important in clarifying the problem and in defining some of the questions to be answered in the future. Work of this kind would have promise of success if carried on with refined studies of the natural history of the ground squirrel."

From the statement on the dust-cover, we quote: "In areas of greatest rural population, the ground squirrel is the most prominent small mammal. It responds to disturbance of the soil in much the same manner as do many common weeds. Cultivation is likely to cause enormous increase in the squirrel population. Frequently, unsuitable use of the land is indicated by the presence of these rodents in unprecedented numbers, and control may be accomplished by the substitution of a cover of vegetation more nearly natural to the soil. . . . His [the author's] approach to the study is that of a naturalist who is interested in the ground squirrel, not as a pest to be destroyed, but as a natural phenomenon to be investigated and understood. Indeed, he demonstrates that the relationship between these animals and the land is such that it actually increases in numbers when the land is under human cultivation. It therefore follows that the relationship of the ground squirrels to the land on which we live is a study of importance in understanding man's own relationship to that land. This is not a book about pests. Dr. Linsdale demonstrates that the danger of disease from ground squirrels and the damage that they do to crops have been greatly exaggerated in the popular mind. The subject of control is not explicitly considered; but, as a corollary to the author's thorough

study of the ground squirrel and its environment, the astonishing truth becomes apparent that present attempts to rid the land of these animals are actually causing them to multiply. Only by understanding clearly the ground squirrel's relationship to the land can effective methods of control be applied."

Life Histories: Kangaroo rat

Allan, Philip F. Notes on Dipodomys ordii richardsoni, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 271-273.

Based on captive animals. Notes on food and water requirements, fighting, dominance, orientation, mating, sanitation, and mobility.--Lee E. Yeager.

Life Histories: Kangaroo rat

Culbertson, A. E. Observations on the natural history of the Fresno kangaroo rat, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 189-203, 2 pls., 1 fig., 1 table.

Author's summary: D. nitratoides exilis, the smallest of the kangaroo rats, occupies a limited area in the central portion of the San Joaquin Valley. The original range has been greatly reduced because of cultivation and irrigation. D. heermanni tularensis occurs in the same area; the two species are competitors. The terrain occupied is the generally level valley floor. Only slight irregularities are present over the area, much of which is characterized by patches of alkali. Burrow systems are confined to the slight elevations. Food storage is very limited; small caches are placed in pits in the sides of the burrows or in the nests. The burrow system is damp in all portions during the rainy season, precluding extensive storage of food. A satisfactory food supply seems to be continuously available, hence food storage is not necessary. Breeding extends throughout the year. The average number at a birth is probably two. Bibliography of 12 titles.--Lee E. Yeager.

Life Histories: Moose

Rush, William Marshall. The largest deer on earth, Fauna (Zoological Society of Philadelphia, 34th St. and Girard Ave., Philadelphia 4, Pa. 35 cents a copy), 8(2), June 1946, pp. 40-43, 4 photos.

Size emphasized with respect to details; habitat, habits, food, predators.

Life Histories: Old squaw

Anon. [Old squaws caught in set nets], Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(10), Nov. 1946, p. 15, 1 photo.

At depths of 8 to 30 fathoms (i.e. 48 to 180 feet). The illustration shows a number of the birds taken from nets at Saugatuck.

Life Histories: Otter

Bradt, G. W. The otter--playboy of streams and lakes, Michigan Conservation (Michigan Dept. of Conservation, 328 State Office Bldg., Lansing 13), 15(3), July 1946, pp. 6-7, illus.

Wandering habits, sparsity of its population, fighting prowess, food habits, economic value, playfulness.

Life Histories: Partridge, Hungarian

McCabe, Robert A., and Arthur S. Hawkins. The Hungarian partridge in Wisconsin, American Midland Naturalist (University of Notre Dame, Notre Dame, Ind. $1.00 a copy), 36(1), July 1946, pp. 1-75, 29 figs., 14 tables.

From authors' summary: "The Hungarian partridge was introduced into Wisconsin and Alberta in 1908. In thirty years the Canadian introduction has spread over much of central Canada and the densities are high, while Wisconsin has low densities with only the south-east quarter of the State populated. The partridge ranges of North America were climographically compared with the European range and it was found that (1) the north central states are too warm in the breeding and brood season and (2) that low temperatures do not affect partridge survival. Nesting sites are chosen in cover at least eight inches high. The average clutch is seventeen eggs; the incubation period is twenty-five days. In six years the hatchability varied from 74% to 93%, with an average of 85%. Sixty-eight per cent of the 435 nests failed to produce young. Of the 68%, hay mowing caused 77% of the failure, predation 10%, and cutting weeds with a scythe 6%. Nest phenology showed that hay mowing coincided with the peak of hatching during each of six years. This fact made hay mowing one of the probable reasons for low partridge densities in Wisconsin. A series of dummy nests to check possible egg predators revealed that: (1) Franklin ground squirrel, 13-lined ground squirrel, skunk and crow ate partridge eggs; (2) the evidence concerning woodchuck, fox squirrel and badger was inconclusive. In behavior study of penned chicks, it was found that feeding and drinking are 'learned' by the second day through a random pecking process. Dusting is not indulged in until the birds are two weeks old. Chicks react to call as soon as they are hatched. At six weeks the chicks were observed playing by running, dipping and bouncing at each other. A food-selection experiment with a group of nine adult birds showed a preference for the grain they were raised on, even when given a choice of eight other grains. They suddenly shifted their second and third preferences during an extremely cold period. Partridges are tolerant of humans only under stress of hunger or while protecting the nest or young."

Also material on egg weight loss, breeding pair losses, embryo age characters, growth of pen-raised birds, and secondary and tertiary sex ratios. Paper too detailed for adequate summary in this release; it is one of the better studies on game bird ecology and life history. Bibliography, pages 73-75.--Lee E. Yeager.

Life Histories: Pheasant

Carlson, C. Edward. Status of pheasants, 1946, Conservation Volunteer (Minnesota Dept. of Conservation, State Office Bldg., St. Paul), 9(54), Sept.-Oct. 1946, pp. 30-33.

Popular account of pheasant decline in Minnesota since about 1941. Lists unfavorable weather during nesting seasons as the main cause of reduced numbers. Census indicates some increase in population in 1946 as compared with 1945.--Lee E. Yeager.

Life Histories: Puma

Koford, Carl B. A California mountain lion observed stalking, Journ. Mammalogy (Ernest T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 274-275.

Animal at elevation 5,100 feet observed stalking deer at midday; Ventura County, February 1946.--Lee E. Yeager.

Life Histories: Puma

Young, Stanley P. On the scream of the puma, American Forests (919 Seventeenth St., Washington, D. C. 35 cents a copy), 52(9), Sept. 1946, pp. 408-409, 442, 2 photos.

Popular compilation of literature pertaining to scream of the puma. Evidence indicates that this cat does occasionally give voice to a loud cry or scream that may be imagined human in origin.--Lee E. Yeager.

Life Histories: Raccoon

Bradt, G. W. The raccoon--masked clown of the woodlots, Michigan Conservation (Dept. of Conservation, State Office Bldg., Lansing 13, Mich.), 15(8), Sept. 1946, pp. 6-7, sketches.

Popular article on habits of raccoons and the annual take of this species in Michigan. Notes increase in the State during recent years.--Lee E. Yeager.

Life Histories: Road-runner

Holland, Henrietta. El paisano, the road runner, Fauna (Zoological Society of Philadelphia, 34th St. and Girard Ave., Philadelphia 4, Pa. 35 cents a copy), 8(2), June 1946, pp. 34-36, 1 photo.

Vernacular names, food habits including predation on snakes, appearance, and customs.

Life Histories: Shrew, Long-tailed

Morrison, Peter R., and Oliver P. Pearson. The metabolism of a very small mammal, Science (1515 Massachusetts Ave., N. W., Washington 5, D. C. 25 cents a copy), 104(2700), Sept. 27, 1946, pp. 287-289.

Long-tailed shrew, Sorex c. cinereus, used as test animal. Results indicate that its basal metabolism index is 183, as compared to 78 for man and 65 for steer. Bibliography of 6 titles.--Lee E. Yeager.

Life Histories: Skunk

Bradt, G. W. The skunk--master of defense, Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(7), Aug. 1946, pp. 6-7, figures.

General account of habits, life history, economic value, and especially its scent glands and their use in defense.

Life Histories: Snake, Mud

Meade, George P. The natural history of the mud snake, Scientific Monthly (Smithsonian Institution, Washington, D. C. 50 cents a copy), 63(1), July 1946, pp. 21-29, 6 photos.

Farancia abacura. Range, measurements, coloration, food, and reproduction. The tail spine, blunted in age, is used as a weapon by young individuals. It is the basis of beliefs as to the dangerous character of this so-called "stinging snake," which is, however, harmless to man. The author suggests that hoop-snake fables have been inspired by the appearance of this snake and its prey, Amphiuma, in their struggles.

Life Histories: Turkey, Merriam's

Ligon, J. Stokley. History and management of Merriam's wild turkey, New Mexico Game and Fish Commission (Sante Fe), x+84 pp., 19 pls., 2 maps. Printed at Albuquerque, 1946.

A Pittman-Robertson project report, turned out as a soundly-prepared, competently printed, and well-bound booklet. It is certain that the author knows more than anyone else ever has of the subject and he has summarized his knowledge in praiseworthy form. Much early history is given in the chapter on range and subspecific characters; life cycle and behavior, distribution, and nesting and raising of young are the subject of other sections. Management is given more space than any other topic and in its discussion, much additional information of a life history nature, especially on foods, is incorporated. Limiting factors, trapping and transplanting, and artificial propagation also are treated. The author and the sponsors are to be congratulated on this informing and appropriately presented document.

Life Histories: Wild boar

Vinson, Carlos. Wild "Rooshians" of Tennessee, Nature Magazine (1214 Sixteenth St., N. W., Washington 6, D. C. 35 cents a copy), 39(8), Oct. 1946, pp. 405-406.

Wild boars imported from the Ural and Harz mountains in 1912 escaped during World War I and multiplied in east Tennessee mountains. Some 700 are estimated to inhabit the Tellico area alone. Their fighting equipment, food habits, and competition with ruffed grouse, wild turkey, and black bear are discussed. "Hunters are interested in the establishment of the European boar in this country as an additional game species. But some naturalists, and others interested in conservation of our native animal species, do not share their enthusiasm. One wildlife authority holds that the imported wild boar, if allowed to multiply very far beyond its present numbers, would eventually seriously affect other forms of wildlife in the Tellico Area. This man hopes, providing the herd continues to increase as it has done in the past, that authorities will relax hunting restrictions to keep the wild boar in check. Others would like to see this alien species wiped out." The latter solution, if practicable, would be best. A rooting species like the wild boar is a menace to the entire flora and fauna of any area densely inhabited. Its activities tend to destroy the humus of the forest floor and all of its inhabitants, an interlocking community upon which the health of the forest depends. In a region like east Tennessee, its inroads upon certain rare plants might offset any possible worth the animal may have. Vinson remarks that "the hunter who kills a European wild boar does not get much; unless it is a young animal, the flesh is not considered edible. Mounted wild boar heads are widely sought as trophies, but beyond that, there is really not much excuse for hunting them." All such barren trophies together are not to be compared in value with a single living colony of the rare box huckleberry (Buxella), mountain camellia (Stuartia), or oconee bells (Shortia), which these animals can easily destroy.

Life Histories: Wolverine

Woods, Gordon T. The wolverine, Nature Magazine (1214 Sixteenth St., N. W., Washington 6, D. C. 35 cents a copy), 39(8), Oct. 1946, pp. 426-428, 444, 2 figs.

Trapping is exterminating the wolverine; there may be less than seventy-five in the United States today. Without protection and management, it may be exterminated during the present century. The distribution, appearance, names, and habits of the animal are treated, as also are the value of its fur and its susceptibility to trapping. Immediate steps to conserve the animal are recommended.

Management: Beaver

Meyers, A. V. Beaver management in Oregon, Oregon State Game Commission Bul. (Box 4136, Portland 8), 1(2), May 1946, pp. 1, 3-4, 3 photos.

Early value of beaver pelts in the fur trade; laws and regulations for protection of the animal; tabulation of number of pelts taken 1923-24 to 1928-29; trapping and transplanting to restore the species; control of beaver damage; results of cooperative land-owner-game commission management.

Management: Boxes for squirrels

Terrill, Harold V., and Bill T. Crawford. Using den boxes to boost squirrel crop, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 7(8), Aug. 1946, pp. 4-5, 1 photo, 1 sketch.

Denning needs of squirrels and plans for box construction.--Lee E. Yeager.

Management: Cooperative

Gabrielson, Ira N. Future sportsmen's club programs, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg. 10 cents a copy), 17(5), Aug. 1946, pp. 4-5, 31, 3 photos.

Discussion of activities in which sportsmen may contribute to the management of game resources.--Lee E. Yeager.

Management: Cottontail

Bradt, G. W. Cottontail rabbit--big game of the small boy, Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(9), Oct. 1946, pp. 4-5, illus.

The leading game mammal of the State. Usage of the terms "rabbit" and "hare" is discussed. Life history of the cottontail is outlined, with special attention to defensive abilities and food. Pen breeding and importation for restocking have failed. The effect of agricultural practices upon the rabbit population has varied; in their present phase they are favorable. Management suggestions are made.

Management: Deer, in state parks

Wilson, Chester S. Toward better conservation of trees and deer in state parks, Conservation Volunteer (Minnesota Dept. of Conservation, State Office Bldg., St. Paul), 9(54), Sept.-Oct. 1946, pp. 20-24, photos pp. 25-28.

Courageous statement by a State Conservation Director on the management of deer in state parks. Advocates hunting and other control of deer numbers in such areas, for the permanent well-being of both animals and forests. Details Minnesota's experience in Itasca and St. Croix State parks, where hunters killed 1,862 and 1,292 deer, respectively, during the 1945 hunting season. This represents kill densities of 42 and 76 animals, respectively, per square mile of open territory. Deer had seriously affected forest reproduction on these areas and had themselves begun to suffer from malnutrition due to lack of winter food.--Lee E. Yeager.

Management: Deer licks

McBride, James K. Deer lick improvements, Ohio Conservation Bul. (362-366 S. 4th St., Columbus, Ohio. 10 cents a copy), 10(10), Oct. 1946, pp. 20-21, 3 photos.

Deepening and damming mostly brackish springs.

Management: Farmer-sportsman relationship

Sigler, William F. An experimental farmer-sportsman cooperative in Iowa, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 274-275.

Experience with two organizations started in 1940, as to reactions of the farmers, the member sportsmen, and other hunters. Partially summarized in the following paragraph.

"While many farmers believed there should be some compensation from hunters for using their farms, they were not psychologically ready to accept the idea of being relieved of the administration of hunting privileges on their lands, or of putting game production completely on a business basis. Some hunters were afraid the sportsmen's group might become powerful enough to restrict what they termed the free hunting range. Many sportsmen agreed with the basic principles of the organization but with reservations. They believed the administrative and other expenses of such an organization were so high that a majority of the hunters could not afford to be members. Farm youths enjoyed their part of the program and appreciated the opportunity to learn more about wildlife."

Management: Hedgerow

Steavenson, Hugh A. Multiflora rose for farm hedges, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 227-234, 1 pl.

Results from Soil Conservation Service experience as to characteristics of this rose, its site and cultural requirements, method of planting, barrier properties, and propagating and handling planting stock. From author's summary: "Rosa multiflora, the multiflora rose, has been tested as a living farm fence in the southern Upper Mississippi Valley for several years. It appears of value for protecting woodland and wildlife areas from livestock, and is of even more potential value to divide farm fields. Such fence provides fine nesting, escape, and travel cover for wildlife, and the abundant persistent fruits afford winter food and grit. . . This rose appears to have special value as a divider between fields farmed on the contour where it serves as a fence, a contour guide, and an erosion buffer strip. Living fences are better adapted than wire fences for contour planting. One-year seedlings of multiflora rose seem best for planting; they can be produced readily in a nursery, at about the cost of black locust seedlings. For fence plantings, a single row with the plants spaced 12 inches apart is recommended. Planting is speeded and growth enhanced by preparation of a slight ridge formed by back-furrowing and

discing a planting strip 8 to 10 feet wide. Suppression of competition by mulching or by cultivation during the establishment period will greatly hasten the formation of a barrier. Multiflora rose is adapted to a wide variety of soils and situations, but will probably not form a barrier on badly eroded claypans or drouthy sands and gravels. Fertilization has been of little advantage." Bibliography of 12 titles.

Management: Inventory, antelope

Anon. Wyoming antelope, Wyoming Wild Life (Wyoming Game and Fish Commission, Box 335, Cheyenne), 10(5), May 1946, pp. 4-6, 19-21, 2 maps, 1 table, also cover cut.

Notes on an airplane census and tabulation of the results: total number 48,000. Discussion of the hunting take in relation to the population and of steps taken which resulted in increase of the number of the animals estimated at 5,000 "forty years ago".

Management: Inventory, pheasant

Stiles, Bruce F., and George O. Hendrickson. Ten years of roadside pheasant censuses in Iowa, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 277-280, 1 fig., 1 table.

Methods of taking the census are described and evaluated. Results through the years and legislative interference are discussed. The authors conclude that: "The present roadside pheasant census in Iowa is fairly successful; the census method needs further refinement to provide definite means of allowing for varying weather conditions, vegetative cover, and general seasonal variations; personnel conducting the pheasant census should be better trained and more carefully instructed each year; improved means of checking the accuracy of the census should be devised."

Management: Nest boxes

Bryan, Paul. Further use of wood duck nesting boxes in Wheeler Wildlife Refuge. Rep. Reelfoot Lake Biol. Sta. (Tennessee Acad. Sci., Nashville), 10, Jan. 1946, pp. 76-77.

Summary of 1941 results, and presentation of those for 1942. Besides wood ducks--owls, squirrels, and opossums used the boxes mostly for actual nesting. "In localities where den trees are few, the use of nesting boxes probably influences the abundance of several species of wildlife." Boxes made of rough boards lasted better than those built of slabs.

Management: Pheasant

Allen, Durward L. Pheasant research, Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(7), Aug. 1946, pp. 3-4, 13-14, 2 photos.

The current pheasant shortage extends from New York to the Dakotas. Sportsmen are rightfully interested but their suggestions as to doing something about the matter are confused and confusing. They would do well to rely upon the findings of specialists in game management. Probable causes, some of the suggestions for action, and the undesirability of political maneuvers are discussed in the light of the results of research. The apparent cause of the low in Michigan is three successive wet nesting seasons. A closed season, increased winter feeding, restocking, and predator control are not recommended. Rather, faithful management of Soil Conservation Districts, prevention of spring burning, acceptance of the inevitability of population fluctuations, and reliance upon the management program of the State Department of Conservation are advised.

Management: Planting for bobwhites: Lespedeza bicolor

Davison, Verne E. Bobwhites thrive on bicolor, Soil Conservation (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 12(5), Dec. 1946 (Nov.), pp. 99-101, 2 photos, 1 drawing.

"Soil conservation farming supports bobwhite quail better than either nature or man has been able to do before." This is chiefly because Lespedeza bicolor is a perennial plant that can be used economically. It is being used in field borders, in strips on idle land and even in woods, and for hedges. Quail feed upon the seeds daily and when available in quantity, they last until spring. Its flowers are sought by bees and its bark by rabbits. Instructions for planting are given.

Management: Planting for wildlife: Nut trees

Chapman, Floyd B. The nut trees in wildlife management, Ohio Conservation Bul. (1106 State Office Bldg., Columbus 15, Ohio. 10 cents a copy), 10(11), Nov. 1946, pp. 20-21, 4 photos.

Notes on the original abundance of mast and on its utilization by wildlife. Suggestions are given as to native and introduced trees that can be planted to enhance the nut supply and otherwise benefit wildlife. The nuts and wood of some of the species have considerable commercial value. Suggestions for planting are made.

Management: Planting for wildlife and erosion control

Drahos, Nicholas. Hedgerows, Cornell Rural School Leaflet (State College of Agriculture, Ithaca, N. Y.), 40(2), Fall 1946, 32 pp., illus.

The value of hedges in controlling erosion and catering to wildlife is stressed; wildlife is appraised as providing a fur crop and a stimulus for sportsman expenditures; both harmful and beneficial influences of wildlife are considered. Plants for hedgerows (from ground cover to trees) are suggested. Fifteen items of literature helpful in preparation of the Leaflet are listed.

Management: Planting for wildlife and erosion control

Mundie, E. W. Wildlife benefits from soil conservation districts, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(1), July 1946, pp. 6, 16, 18, 2 photos.

A general article on the districts with incidental mention of benefits to wildlife.

Management: Planting, Lespedeza bicolor

Phelps, Chester F. Bicolor--a bushy lespedeza for quail and other wildlife, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(3), Sept. 1946, pp. 9-11, 22, 5 photos.

Description of the plant, the seeds of which are eaten by bobwhites and the bark and leaves by cottontails. Its use in protecting field borders from erosion and for game food strips; directions for planting and maintenance.

Management: Public shooting grounds

Yeager, Lee E. Hunting grounds coming up!, Outdoorsman (814 North Tower Court, Chicago 11, Ill. 20 cents a copy), 88(5), Sept.-Oct. 1946, pp. 19, 56, 57-58, 1 map.

Twenty-seven states operate public shooting grounds of one sort or another. Greatest development of this movement came after 1938, when it became possible to purchase such lands with Pittman-Robertson money. Public shooting grounds are mainly concerned with farm game and reach their highest utility in the more densely populated states. They are expensive to acquire and to operate on a controlled basis. Map shows number of grounds by states.--Lee E. Yeager.

Management: Seal, Fur

Bower, Ward T. Alaska fishery and fur seal industries: 1944. U. S. Dept. of the Interior, Fish and Wildlife Service, Statistical Digest 13, 1946 (Supt. of Documents, Washington, D. C. 20 cents a copy), pp. 55-79, tables 23-31 (processed).

Number and value of seal skins taken and sold; notes on the fox industry; and computation of fur seals by Edward C. Johnston. Total 2,945,663, representing a percentage increase of 8.27.

Management: Soil conservation and wildlife conservation

Bennett, Hugh H. Conserving our soil, water and wildlife, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg), 17(6), Sept. 1946, pp. 4-5, 34, 4 photos (one of author).

States in popular manner the dependence of life on soil and water, and that good management of these resources results in more fish and wildlife. Soil conservation districts offer a practical instrument for effecting systematic soil conservation practices on large land units. Nearly two-thirds of U. S. farms are now in soil conservation districts, but this is only a beginning in the battle against erosion.--Lee E. Yeager.

Management: Statistical information

Gresh, Walter A. The handbook of game and fish management (The compiler, Box 121, Traffic Station, Minneapolis, Minn. $4.00 a copy). Loose leaf binder and contents with interleaved guide cards.

Statistics relative to: Duck stamp money, Federal aid and matching funds by states, and the purposes for which expended; angling, hunting, and trapping licenses and miscellaneous permits by states, giving number and receipts; big-game inventory on National forests and in general; game law violations; hunting accidents; state game departments, whether on a civil service basis, their form, addresses, officers, and number of personnel; the number of game farms and fish hatcheries (including Federal); distribution of propagated fishes by kinds and states; game harvest by states; game stocked by states; farms in the United States, number, acreage, and values; Federal lands by states and administrative agencies; land and water areas in acres by states; acreages according to land use; number of hunting licenses and duck stamps in relation to the waterfowl inventory; ammunition use; and data on life history of game and fur animals. There are also distribution maps for the bobwhite, pheasant, deer, migration routes and flyways of waterfowl, original and present waterfowl breeding grounds, their wintering range, and the Missouri River basin project. Other sections present information on fishes and on game laws.

Management: Stocking deer

Anon. The Uwharrie deer project, North Carolina Dept. of Conservation and Development (Raleigh), Bul. No. 1, Jan. 1946, 19 pp., 14 photos.

Report on a Federal Aid project to reestablish a herd of white-tailed deer in the Piedmont section of the State. Description of the stocking area, leasing the land, posting boundaries, and trapping, tagging, and transporting the deer; notes on their movements after release. Average over-all cost per animal $9.74.

Management: Stocking pheasants

Grimmer, W. F. Pheasant stocking, Wisconsin Conservation Bul. (Wisconsin Conservation Dept., Madison 2), 11(8-9), Aug.-Sept. 1946, p. 31.

Suggestions as to handling the birds under the heads of "Do's" and "Don'ts".

Management: Stocking pheasants

Hanson, H. Gordon. Pheasants in Oklahoma, Oklahoma Game and Fish News (Oklahoma Game and Fish Commission, Oklahoma City), 2(9), Sept. 1946, pp. 8-9, 3 photos, 1 drawing.

Brief history of pheasant stocking in Oklahoma, with notes on gradual spread of the species in the State during recent years. Allays fear of hunters that pheasants will destroy quail.--Lee E. Yeager.

Management: Stocking pheasants

Hoffmaster, P. J. Does pheasant stocking pay?, Outdoor Life (Popular Science Publishing Co., New York, N. Y. 25 cents a copy), 98(2), Aug. 1946, pp. 25-27, 116-119, 7 photos.

Evidence, popularly presented, clearly indicates that pheasant game farming and artificial stocking of these birds do little to increase established population or improve hunting. Points out usefulness of stocking on new or vacant range suitable for pheasant survival, but once a breeding stock is present, nature should be encouraged to complete the job. The noted Dakota pheasant stands were so built up. A useful form of publication.--Lee E. Yeager.

Management: Stocking upland game birds

Ligon, J. Stokley. Upland game bird restoration through trapping and transplanting. New Mexico Game and Fish Commission (Santa Fe), x+77 pp., 21 pls., 5 figs.

A Pittman-Robertson product. From probably the widest experience in this field, the author discusses: Transplanting opportunities and limitations, importance of competent personnel, range requirements of game birds, seasons for trapping and transplanting, advance preparations, equipment, trapping techniques (by groups of birds), and caring for captives and releasing them. A well organized, adequately illustrated, and practical manual of its subject.

Management: Weather in relation to

Einarsen, Arthur S. The importance of weather data in wildlife management, Murrelet (Pacific Northwest Bird and Mammal Soc., Washington State Museum, Seattle 5. 70 cents a copy), 27(2), May-Aug. 1946, pp. 29-33, 1 pl., 2 tables.

Relation of weather to pheasants in Willamette Valley and to black-tailed deer in the Oregon Coast Range, "The effects of weather on wildlife are too great to be overlooked or relegated to a place of minor importance. The establishment of weather-data collecting stations in correlation with wildlife and range management programs is essentially a sound practice. The facilities of existing weather stations can be more useful if their programs are altered to include supplemental observation points and the addition of certain pertinent data in problem areas. Voluntary cooperators may be trained to supply additional

facts, and their contributions would assure a well-integrated program of determination of weather influences. The practice is already in effect in basic weather data collecting. It needs improvement, however, to meet the needs of game management. If the influences of weather can be accurately gauged and interpreted, many natural resources will be greatly benefited."

Management: Woodland

Terres, John K. Let's bring wildlife back to the woods, Audubon Magazine (1000 Fifth Ave., New York 28, N. Y. 45 cents a copy), 48(5), Sept.-Oct. 1946, pp. 294-300, 10 photos.

Popular article depicting ruin of woodland for wildlife by clean-up operations and grazing and suggesting means of offsetting the damage. Review of Dambach's work in Ohio (noted from time to time in WILDLIFE REVIEW) which revealed an increase of wildlife in woods relieved of grazing. Maple sugar production also was notably improved. Preservation of den trees is especially emphasized.

Natural History: Bats of Carlsbad Caverns

Christensen, Ernst. The bats of Carlsbad Caverns, Animal Kingdom (Zoological Park, Bronx, New York 60, N. Y. 50 cents a copy), 49(3), June 1946, pp. 98-102, 2 photos.

Habits and timing of flights; value of guano deposits in these and other caves; predation on the bats by red-tailed, Swainson's, and short-shinned hawks, and the great horned owl. The species chiefly concerned is the Mexican free-tailed bat (Tadarida mexicana). Locality, New Mexico.

Natural History: Birds of Florida

Greene, Earle R. Birds of the Lower Florida Keys, Florida Academy of Science Quarterly Journ., 8(3), Sept. 1945, pp. 199-265, 1 col. and 9 half-tone pls., 1 map. Received July 1946. (Florida Academy of Science, University of Florida, Gainesville, and Florida Audubon Society, 460 Henkel Circle, Winter Park. $1.00 a copy).

Summary of observations by the writer while Fish and Wildlife Service Manager of the Great White Heron, and Key West, National Wildlife Refuges, 1939-48. Information is fullest on the great white, Ward's, and their hybrid, Wurdemann's, herons; the white-crowned pigeon; and the Cuban golden warbler, first reported from the United States by this author. A clear-cut and useful report on a little-known area.

Natural History: Deer, White-tailed

Woolley, Donald J. The white-tailed deer, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(5), Nov. 1946, pp. 6-7, 16, 2 photos.

The stock in eastern Virginia is of the pure indigenous strain; in the west, northern and western animals have been introduced. The article briefly considers characteristics, life history, diseases, weights, food, and population. The term "Plimsoll Line" is misused; see dictionary.

Natural History: Fox, Gray

Downing, Stuart C. The history of the gray fox in Ontario, Canadian Field-Naturalist (I. L. Conners, Central Experimental Farm, Ottawa, Canada. 40 cents a copy), 60(2), March-April 1946, pp. 45-46.

From examination of literature (6 titles cited) and museum collections, the author concludes that "A summary of the history of the gray fox in Ontario presents a pattern of distribution unknown, I believe, for any other Ontario mammal. Previous to European occupation it was a common mammal in southern Ontario. Exterminated by either the European settlers or some unknown agency before their coming, it was absent from the province for over three hundred years. Following a northward extension of range and an increase in numbers in the northern states, it is now invading Ontario again.".

Natural History: Grouse

Ammann, G. A. Do you know your grouse?, Michigan Conservation (Dept. of Conservation, State Office Bldg., Lansing 13, Mich.), 15(8), Sept. 1946, pp. 5, 14, sketches.

Popular article on how to distinguish ruffed, pinnated, and sharp-tailed grouse.--Lee E. Yeager.

Natural History: Grouse, Ruffed

Thornton, James E. The ruffed grouse, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(4), Oct. 1946, pp. 14-15, 3 photos.

Popular account of life history, food habits, range, cycles, management.

Natural History: Mammals of Iowa

Scott, Thomas G. What mammal is that?, Iowa Conservationist (Iowa State Conservation Commission, Des Moines), 5(8), Aug. 1946, pp. 57, 60, 64; 5(9), Sept. 1946, pp. 65, 68-69, 71.

Authentic popular articles on the animals of Iowa, small mammals being well illustrated by photos of study skins.--Lee E. Yeager.

Natural History: Mammals of Nevada

Hall, E. Raymond. Mammals of Nevada. University of California Press (Berkeley), $7.50 a copy), xi+710 pp., 11 pls., 485 numbered, and many other, figs., 2 charts, 27 tables. 1946.

Introductory chapters state methods of the study and plan of treatment; discuss the topography, climate, floral belts, and life-zones of Nevada; treat factors affecting geographic distribution, mammal populations and their fluctuations, and speciation; and emphasize the desert type of the mammalian fauna. A check list gives technical and vernacular names of 232 forms, representing 111 species; this is followed by an illustrated key to Nevada mammals. The bulk of the book is made up of the accounts by species, including both general and technical matter in sufficient detail. There is a wealth of distribution maps. Concluding chapters include: a hypothetical list, enumeration of type localities, notice of recent changes in nomenclature, a comprehensive gazetteer (with list of source maps), an illustrated glossary, 9-page list of literature cited, and a 16-page index. The most elaborate state list of mammals yet published and apparently of high quality throughout.

Natural History: Raptors of Wyoming

Williams, Ralph B., and Clyde P. Matteson, Jr. Wyoming hawks, Wyoming Wild Life (Wyoming Game and Fish Commission, Cheyenne), 10(6), June 1946, pp. 12-18, illus.; 10(7), July, pp. 8-12, illus.; continued by Matteson alone in 10(8), Aug., pp. 31-34, illus; 10(9), Sept., pp. 15, 32-33, illus.

Definition of the groups of raptors represented in the State and discussion of their economic values.

Natural History: Squirrel, Gray

Cross, R. H. The gray squirrel, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(2), Aug. 1946, pp. 14, 20, 1 photo, figures of tracks.

Range; characters compared with those of the fox and red squirrels; food; life-history; best time for open season; management.

Natural History: Turkey

Mosby, Henry S. The eastern wild turkey, Virginia Wildlife (Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond 13, Va. 10 cents a copy), 7(3), Sept. 1946, pp. 4-5, 2 photos.

Popular account briefly treating history, status in Virginia, habits, hunting, and management.

Natural History: Wildlife of Iowa

Stiles, Bruce F., and others. Wildlife resources of Iowa. Published by the State of Iowa (Des Moines), 41 pp., illus., 1946. Frontispiece a portrait of Jay N. Darling to whom the work is dedicated.

A Cooperative Wildlife Research project. As everywhere, exploitation prevailed in Iowa until the need for conservation was forced on public attention. The interlocking relationships of soil, water, and wildlife conservation are emphasized. "Iowa is now making progress, but still has a long way to go." If that must be said of our richest agricultural State, what can be said of the others? Sections of the book treat the Fisheries of Iowa, including utilization of turtles and frogs; and Birds and Mammals (by Bruce F. Stiles and George O. Hendrickson). Most attention is given to upland game birds, waterfowl, and food and fur mammals, with special reference to their numbers and the take. The bulletin is mostly on values and use; something like the conservation introduction would have been welcome at the end.

Predation

Cook, David B. Concerning predators, Audubon Magazine (1000 Fifth Ave., New York 28, N. Y. 35 cents a copy), 48(3), May-June 1946, pp. 130-136, 5 drawings by W. J. Schoonmaker.

Discussion of earlier and present-day American views on predators, the principal species, their food habits, and their effects on prey populations. "The flesh-eaters are the first line of defense against the tendency of the eaters of plants to increase beyond the capacity of the range to properly sustain them. Some of their acts appear to be detrimental to human interest, whether sentimental or economic. But the function of the predator is vital and one which, so far, has proved to be beyond our capacity to handle through human intervention. Either the predators perform their proper task or the job goes undone. And if they fail, the consequences may be far reaching and the cure may prove to be worse than the condition it was intended to remedy. Let us cherish the predator as one especially adapted to perform certain essential regulatory functions, without whom the biological balance would be even more awry than it now is. His presence is often a considerable annoyance. But his absence may result in something close to tragedy."

Predation

Errington, Paul L. Predation and vertebrate populations, Quarterly Review of Biology (Williams and Wilkins Co., Baltimore, Md. $1.50 a copy), 21(2), June 1946, pp. 144-177; 21(3), Sept. 1946, pp. 221-245.

The outstanding paper on its subject, in which factual and theoretical considerations are combined in the light of the author's exceptional information and reflection in this field. For convenience, predation is treated according to groups of prey, as the rodents, lagomorphs, other mammals, gallinaceous and other birds, and the lower vertebrates. In discussion, mathematical treatments and experimental studies of predation are briefly reviewed; the influence of territoriality, emergencies, intercompensations, and numerical factors are considered; and the bearing of the facts of predation upon the theory of natural selection is discussed. From the author's summary: "predation looks ineffective as a limiting factor to the extent that intraspecific self-limiting mechanisms basically determine the population levels maintained by the prey . . . something of a scaling down of emphasis should well be in

order, notably in appraising the role of direct predation in the population mechanics of higher vertebrates." 10-1/2 page bibliography.

Research: Banding bats

Trapido, Harold, and Peter E. Crowe. The wing banding method in the study of the travels of bats, Journ. Mammalogy (Emmet T. Hooper, University of Michigan, Ann Arbor. $1.00 a copy), 27(3), Aug. 1946, pp. 224-226, 1 pl.

Method of placing standard aluminum band around distal portion of forearm described and illustrated. Bibliography of 3 titles.--Lee E. Yeager.

Research: Federally aided in Missouri

Tulenko, Paul. The Federal-Aid wildlife program in Missouri, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 7(7), July 1946, pp. 4-5, 14-15, 4 photos.

Review of projects completed, in progress, and in prospect.

Research: Federally aided in Pennsylvania

McDowell, Robert D., and Logan J. Bennett. The research program, past, present, and future, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg. 10 cents a copy), 17(4), July 1946, pp. 6-7, 22, 4 photos.

Summaries of results obtained from projects under the Pittman-Robertson Act in Pennsylvania.

Research: Islands as sites for controlled research

Nestler, Ralph B. Potential value of islands for controlled studies on upland game birds, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 239-241.

More thoroughly controlled experiments are possible on island than other outdoor sites, chiefly by reason of their isolation. Review of pheasant studies on Protection Island, Washington (see WILDLIFE REVIEW, Nos. 43, June 1945, p. 47, and 45, February 1946, p. 37). Suggestions as to types of research that could well be done on islands.

Research: Marking deer

Young, J. Martin, Jr. Life saving arrows, Natural History (79th St. and Central Park, West, New York 24, N. Y. 50 cents a copy), 55(9), Nov. 1946, pp. 424-425, 3 photos.

In cruising radius studies, arrows with sponge rubber tips soaked in paint were shot against the deer. Enamel paints proved best, and yellow the color of highest visibility. The marks could be distinguished with binoculars at distances up to a quarter of a mile and remained until the animals shed their hair.

Research: Scat analysis

Murie, Olaus J. Evaluating duplications in analyses of coyote scats, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 275-276.

An experiment indicated that far fewer than the number of mice consumed may be counted from remains in scats, apparently because of complete digestion of many bones. "In the feeding experiment here described, only about half the number of mice known to have been eaten was recovered in the droppings. Hence we may safely discount the possibility of duplication in the total tally derived from study of material collected under natural conditions over a wide area. Naturally, when bigger prey animals are concerned, such as deer or large carrion, the same animal will furnish material for a considerable number of scats. Under the usual field conditions and random collecting of scats, there probably is slight chance of duplication in the total tally of prey, up to the size of a squirrel, or even of a marmot; but the number of mice listed would likely be under the true figure."

Research: Sexing grouse, ruffed

[Ammann, G. A. Sexing ruffed grouse], Michigan Conservation (Michigan Dept. of Conservation, State Office Bldg., Lansing 13), 15(7), Aug. 1946, p. 13, 1 photo.

The middle tail feathers of the male average longer than those of the female and usually have a solid instead of a broken subterminal dark band.

Research: Squeaking animals

Loring, J. Alden. "Squeaking" animals, Nature Magazine (1214 Sixteenth St., N. W., Washington 6, D. C. 35 cents a copy), 39(8), Oct. 1946, pp. 450-452, 6 drawings by O. J. Murie.

Description of this decoying method, and account of experiences in its use in attracting various birds and mammals.

Research: Stocking quail

Bennitt, Rudolf. Report on a three-year quail stocking experiment, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 7(6), June 1946, pp. 10-11, 2 photos, 1 table.

Under conditions as nearly alike as possible, one area of a little more than 2,000 acres was stocked heavily, and another left unstocked, during a study period of three years. The results of semiannual censuses are tabulated and discussed. The conclusion is that stocking produced no discernible effect upon the quail population. That is regulated by carrying capacity, which the addition of birds can not increase.

Research: Trapping

Petrides, George A. Snares and deadfalls, Journ. Wildlife Management (Logan J. Bennett, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 10(3), July 1946, pp. 234-238, 4 pls.

Description and illustration of numerous types of snares and deadfalls, with supplementary notes on certain other traps.

United States: Federal aid in wildlife restoration

Rutherford, R. M. Pittman-Robertson contributions to forest game restoration and management, Journ. Forestry (825 Hills Bldg., Washington 6, D. C. 50 cents a copy), 44(6), June 1946, pp. 419-423.

History and scope of the Act of 1937 providing for Federal aid to the states in wildlife restoration; status of the special fund financing operations under the Act and outlook for future collections; proportions of forest and of farm game. Summary of illustrative research performed under the authority of this legislation and of the use made of the results. Statement of progress made in land acquisition and development of wildlife habitat. From author's summary: "The Pittman-Robertson program, during the first seven years of operations, has resulted in substantial progress toward better management of forest wildlife and in bringing back vanished species to habitats suitable for them. Prior to the start of this cooperative program some of the states did not have any technically trained wildlife workers in their employ. The employment of technically trained help and the added inducement of all reasonable assurance of employment stability have had a potent influence on the extent of accomplishments. . . The special fund in the Treasury to finance the federal share of work costs contained almost $12,000,000 on June 30, 1945. Looking to the future, we may expect that annual excise tax collections will materially exceed those deposited in the fund in prior years. With ample funds being available, this cooperative wildlife restoration program should expand greatly in the near future. In such stepped-up operations, it can be expected that forest wildlife will receive increased attention consistent with its relative importance in the overall wildlife restoration problems confronting the states." Bibliography of 5 titles.

Weights: Elk

Skinner, Curtis K. Live elk weights, Wyoming Wild Life (Wyoming Game and Fish Commission, Cheyenne), 10(7), July 1946, p. 32.

Of 49 individuals by age and sex groups.

WILDLIFE LEAFLETS

Issues of interest to wildlife managers additional to those previously mentioned are listed below. Copies of these mimeographed leaflets can be obtained from the Fish and Wildlife Service, U. S. Department of the Interior, Chicago 54, Ill.

287. Facts about 1080, 2 pp., May 1946.

Sodium fluoroacetate; characteristics; varying toxicity for different kinds of animals; directions for its use in rat control; suggestions as to what to do for humans ingesting it. This chemical is not sold directly to the public.

288. Facts about ANTU, 2 pp., May 1946.

Alphanapthylthiourea; characteristics; toxicity to rats and other animals; use in rat control.

290. Annual fur catch of the United States, 22 pp., August 1946.

Compilation of statistics from regional sources of the take of the principal fur animals in Alaska and 40 states, 1940-1943. Value of the raw furs about one hundred million dollars, of manufactured products, some $443,000,000.

NOTES AND NEWS

Bibliography.--The following articles bearing on those aspects of bibliography indicated by the titles are contained in Science (Smithsonian Institution Bldg., Washington 25, D. C. 15 cents a copy), 102(2695),Aug. 23, 1946: Hunt, Judith Wallen. Science librarianship, pp. 171-173; Seidell, Atherton. International cooperation in scientific documentation, pp. 174-175; Fernberger, Samuel W. Scientific publication as affected by war and politics, pp. 175-177, 1 fig.; Stevens, O. A. Better titles, more effective publication, pp. 179-180; Shaw, Joseph A., and Elton Fisher. On the preparation of extensive bibliographies, pp. 180-181; Bailey, C. F., Robert S. Casey, and Gerald J. Cox. Punch cards for indexing scientific data, p. 181, 9 refs.; Richardson, L. R. A simple system for reprint filing, pp. 181-182.

The last four titles are of especial interest to workers having responsibilities pertaining to the recording of scientific data, publication, bibliography making, and building of reprint files.--Lee E. Yeager.

Managing our rivers.--Nearly the entire September 1946 issue of State Government (Council of State Governments, 1313 East 60th St., Chicago 37, Ill. 35 cents a copy) is devoted to a generalized discussion of impending plans for the development of many of our larger rivers, including the lower Mississippi, the Ohio, the Missouri, the Colorado, the Columbia, and others. The probable effect on wildlife is briefly indicated in some cases. In view of the potentialities of this nation-wide water program on fish and wildlife resources,

many may wish to avail themselves of this presentation. Articles are by several authors, most of whom are state officials.--Lee E. Yeager.

The Arctic Institute of North America (referred to in the preceding issue of WILDLIFE REVIEW, p. 45) announces that 1946 Fellowships of $1,500 each were awarded to Dr. Margaret Lantis of Washington, D. C., for ethnologic study of the Eskimos on Nunivak Island, Alaska, and to Mr. Harold C. Henson of the Illinois State Natural History Survey, for wildlife research on the west coast of James Bay, northern Ontario. An additional grant of up to $1,500 was made to Dr. Nicholas Polunin of Oxford University, England, for botanical work on Ungava Peninsula.

Dr. P. F. English, President, is author of a historical and descriptive note on The Wildlife Society published in the Journal of Forestry (825 Mills Bldg., Washington 6, D. C. 44(5), May 1946, pp. 345-346. 50 cents a copy).

The first volume of A. C. Bent's Life Histories which was issued as Bul. 107 of the U. S. National Museum in 1919 has long been out of print and has sold at a great premium. What is stated to be an "unrevised reprint" has been issued by Dodd, Mead, & Company (New York. $5.00 a copy). While the text doubtless has been accurately reproduced, the total number of pages differs, and there are 23 fewer plates, none colored (there were 12 colored plates of eggs in the original). The Company plans to republish the entire series now numbering 14 volumes.

Professor H. T. Gier, Ohio University, Athens, Ohio, has duplicate copies of WILDLIFE REVIEW, Nos. 16, 40, 41, and 44, and wishes to exchange for No. 29, the only issue missing from his set.

While the long-time compiler of WILDLIFE REVIEW was having a bout with peritonitis (one month in a hospital and one in convalescence), Lee E. Yeager kindly scanned the literature and made numerous abstracts. These as well as two contributions by him to the present department have his name appended.

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